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U.S. Department of the Interior
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## Trends

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The Park Practice Program is a cooperative effort of the National Park Service and the National Recreation and Park Association.

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## Introduction

# Computers: A Perspective for the Park and Recreation Profession

*by Richard J. Schroth, Re.D.*

Not since the industrial revolution has a technology had the impact on society as great as the advent of the computer. One of the most wondrous things about the computer is the speed at which it performs. Thomas R. Billadeau, President of Automated Office Systems, suggests you spill a cup of coffee to see just how fast a computer operates. Before the coffee hits the floor, "a large computer could debit 2,000 checks to 300 different bank accounts, analyze the electrocardiograms of 110 patients, score 150,000 answers on 3,000 examinations while concurrently analyzing the effectiveness of the questions, and process the payroll of 1,000 employees!"

Intimidating? You bet it is. Thousands of our fellow professionals in the park and recreation field are currently struggling with the notion of installing or using one of these number-crunching monsters in their departments and feeling very unsure. Some of the insecurity we experience stems from the unknown impact it will have on employees, budgets and the "traditional way of doing things." Questions such as staff education, adjustments in organizational methods and structure, and our general lack of knowledge of how a computer works, all represent components that cause us to wave flags of great caution when the word "computer" is spoken.

Some agencies and universities have looked beyond these barriers and have aggressively made the new computer technology work for them. Others are carefully and methodically grinding through the process of making computers part of their daily routine. Many others are either ignoring the existence of the computer or are just recognizing that the new "fad" may be here to stay.

*William Mills, Mont. County Public Schools*

*Excitement and enthusiasm can result from proper computer system development.*

With whatever group you find yourself most aligned, computers are a part of our world and one which our profession should take an active role in adapting for the benefit of the public it serves. The thrust of this introduction and this entire issue of TRENDS is focused on putting into perspective some of the current usages, future directions and existing problems facing our changing park and recreation profession.

## Positive Steps Being Taken by the Park and Recreation Profession Related to Computer Applications

Our profession has taken a number of positive steps in attempting to respond to the introduction of computer technology in our society. Many of these attempts have been quite successful while others have proven less effective, but have added to the body of knowledge.

### NRPA Computer Workshop

Probably one of the more successful means of presenting the use of advanced technology in our field today is the yearly Workshop on Computers in Parks and Recreation sponsored by the National Recreation and Park Association (See Who Can You Turn To?). Having just finished its sixth year, this workshop probably has done more than any other single thing in attempting to introduce the ideas of computer usage and advanced technology to the park and recreation profession. The workshop focuses primarily on the applications used by various departments and the interchange between workshop attendees about ideas and problems they have encountered in using the computer.

### Literature Availability

For the past few years, the park and recreation profession has experienced a serious void in the available literature about computers and their use in parks and recreation. Only in the last few years have significant literary resources become available. The NRPA computer workshop proceedings serve as a primary resource and are considered the most popular reference source for many departments. A new publication capsulizing the best of the workshop's papers is soon to be released.

Efforts have been made on the part of some universities to compile reference tool publications related to system applications and bibliographic data. In some cases, the response to such publications has been overwhelming, while in other instances the lack of knowledge that the resource even exists has become a problem.

Scarcity of literature about computers and their use is the antithesis of the situation outside our profession. In the past years, thousands of articles have been written about the subject. We can find ourselves equally confused with the overabundance as we did with the void. Nonetheless, one can utilize much of the information from outside our immediate professional boundaries and should consider this as a primary source.

### Expanded Educational Opportunities

As mentioned above, for the first few years, the NRPA Workshop on Computers in Parks and Recreation served as the primary educational source if one wanted to learn more about computers as they directly related to our profession. Recently, however, an expanded educational horizon has opened to our professionals with many opportunities for learning. Most of the professional state and national conferences and workshops now include at least one session on computers.

Some park and recreation curricula are now instructing future park and recreation graduates on the use and application of computers. This fact alone is bringing about initial attitudinal changes in departments as these young people are hired into new jobs. As a result of their training, acceptance of the computer as an important park and recreation program tool is becoming apparent.

Finally, an attempt is currently under way by some of the more progressive universities to take the next step in workshops and educational materials related to the use of the computer. Rather than focusing on the "What can it do"? question, an emphasis is being placed on "How do I effectively interpret and utilize data"? This shift will prove to be a very significant new direction for the profession.

### Growing Historical Base

Acknowledging that many departments have been using the computer in financial applications for many years, the onset of operational applications is a rather new phenomena. We are just beginning to reach a point where a wide range of such uses is developing a track record and is providing us with an experiential base. Some of these applications are also beginning to show significant improvements in operational efficiencies and cost savings. As a result, more and more agencies are making information and techniques available.

## Problems Yet to be Overcome by Our Profession in the Use of Computers

Recognizing that the park and recreation profession has made many significant strides in the

use of the computer, we must also face our shortcomings. For the most part, our deficiencies fall into one of the following two groups.

### General Lack of Understanding About Computers

More educational opportunities are now open to learn about computers. However, many tend to ignore this opportunity. In viewing the profession as a whole, our understanding about computers and their usage has not kept pace with either the business community or even the recreational habits of our citizens. Computer usage is all around us, touching almost every aspect of our lives, and yet a tendency to strongly oppose even the mention of the word "computers" when referring to parks and recreation is the immediate reaction of some.

This is very unfortunate as we see millions of our youngsters, teens, and adults thoroughly enjoying the challenges computer technology brings to them in their leisure time. We have also been shortsighted when we ignore the significant cost savings and productivity improvements that are being recognized by some park and recreation departments around the country. Obviously, our traditional park and recreation programs still remain the cornerstone for our service mission, and many of our ways of managing are still applicable. We can't ignore the fact that advanced technology is carving into people's leisure behavior and departmental administrative practices, no matter how much we try to convince ourselves we should.

The general conservative nature of our profession clearly evidences itself when we ignore or dispute such issues, knowing that our future is moving in this direction. If proper recognition is given to the computer's role in a department, controls can be used to allow the technology to serve rather than frustrate. Regardless of whether those of us choose to accept the usage of computers or continue to ignore their presence, progress will be made in utilizing this technology.

William Mills, Mont. County Public Schools

*Computer assisted instruction is becoming a commonplace event in many elementary schools.*

### University Dilemmas

One of the more disturbing situations is that in many of our university park and recreation curricula there is a lack of attention toward developing computer skills for the students. In some of our more progressive institutions, programs are currently in place, or are being planned, incorporating such training into the curriculum. For the most part, primary attention is being given at the graduate course level and not at the undergraduate. The institutions that have developed undergraduate course work in computers are the exceptions rather than the rule. Although department heads often express interest and recognize the need to address the subject of computers, most have not taken any positive steps toward the implementation of such programs.

Again, only those institutions with foresight are responding to the challenge. A real disservice is created for our young professionals and the field as a whole when either park and recreation departmental course offerings for computers are unavailable; or inadequate counseling causes the individual to leave the institution without some exposure to the computer elsewhere in the curriculum. Functioning in tomorrow's society will require all individuals to have some level of computer literacy, and yet we continue to train and graduate individuals who are computer illiterates. If we don't adjust now, how can we hope to recruit and train the person who has been exposed to this technology from an early age.

## Future Trends

Trying to predict the ways in which our profession will use computers is close to impossible, as new advances are made daily in all aspects of the computer industry and our profession. However, since there are certain trends emerging, the following might provide some insight into the crystal ball of technology and its role in our professional lives.

### Computer Resources Available to All

A service bureau is an organization that sells computer resources to a customer. These resources may range from computing capabilities to providing specialized informational data bases. Use of such services will grow very rapidly once a greater understanding of their availability and applicability is known. Being able to process data, inquire into available grants from worldwide funding sources, review the literature on a particular topic contained in the National Agricultural Library or Library of Congress, and utilize investment models to predict cash flow decisions are just a few of the uses provided by service bureaus that will expand through the use of the computer. The largest and smallest departments alike will have access to world-wide and affordable system resources.

### Interpretation & Public Education

In the years ahead, many departments will be using advanced computer technology as an integral part of their interpretation and public education programs. As illustrated, the National Park Service used such technology at the 1982 World's Fair to inform visitors about nearby National Park areas.

In the same context, microtechnology will also be applied to the use of small gaming systems specifically designed to assist in flora and fauna identification and interpretation. As an example, it is not unrealistic to think of a game as exciting as PAC-MAN but which features nature as a central theme. Current research now allows us to use the computer to monitor the actual changing environmental conditions and immediately displays the results. Someday such programs will be well integrated into our nature and botanical programs.

Many instances can be cited where the computer is currently being used to provide educational information to the public which is tailored to their specific situation and needs. A good example of such usage is a gardening program developed by Purdue University. This program produces custom-made garden plots and, in addition, provides specific plant information regarding the requested vegetables.

Under the umbrella of public education, computers will also be used to interpret information about the departmental leisure activities and management programs. Detailed operating budgets, capital projects and other management information as well as capabilities to reserve park facilities, to select recreational activities and to provide other meaningful information will be available to the public via cable television and your department's computer. Such installations will be found in the public schools, libraries and even the home.

### Clearer Understanding Through Graphics

There is a current trend toward greater use of computer graphics to help explain the volumes of data currently being collected. Low cost, highly visual systems are now available on even the least expensive computer systems.

### Linking the Profession Together

The concept of statewide/nationwide "networking," or hooking computers together to form a communication linkage, will be another direction our profession will explore. Currently, Purdue University, the Kellogg Foundation and the U.S. Cooperative Extension Service have established such a statewide linkage in Indiana called FACTS. Similar systems will grow within other states throughout the country with specialized networks spanning the United States.

### Shared Resources

The idea of sharing a central computer facility among many park and recreation agencies may become an attractive alternative for many communities. This concept is currently working quite well in the Chicago suburban area and may spread as software and programming costs continue to rise.

### Expanded Use of the Computer for the University

Universities will expand the use of computers for instructional, field service and administrative purposes. Departmental word processing and record keeping, internship analysis and placement assistance, interactive class registration and career placement

National Park Service

*NPS Exhibit at the 1982 World's Fair.*

will constitute just a few of the uses found in the automated park and recreation curriculum offices. Teaching models simulating simple to complex environmental and/or administrative conditions will receive greater utilization as an integral part of most departmental course instruction.

University field and extension personnel will also see increased uses in computers for their community programs. Computers will serve as a vital informational linkage to provide university specialists instant data recall and specialized analysis capabilities as they visit field locations throughout their state.

The list of creative applications for computer usage is virtually endless. Outlined above are a few of those items which are with us today, and will probably increase in popularity in the next few years.

## A Final Note

### Take the Initiative to Learn and Understand

We can't stop exploring and learning. When we stop this part of our lives, we perpetuate mediocrity. The opportunity to introduce computer technology into our work places challenges creativity and vision in a new environment. This medium has opened up to us and poses an exciting opportunity to expand our management knowledge, research abilities, and programs for the public. It represents a chance to be more productive, improve our ability to communicate, to understand, and to interpret more completely the world around us.

*Richard Schroth, Re. D., is a Management Analyst with The Maryland-National Capital Park and Planning Commission.*

# Maintenance Scheduling and Management System

*by Chrystos D. Siderelis*

Park managers are responsible for scheduling, controlling, and directing worker efforts, while locating requisite funds to operate a quality maintenance program. Recent demands on the part of park managers for greater productivity have required better, more economical methods to manage maintenance resources, greater understanding of work programs, increased documentation of the cost of work, and the use of this information in future planning.

In the evaluation of maintenance operations for such agencies as the Corps of Engineers, the National Park Service (Blue Ridge Parkway) and from informal interviews with park managers currently using cost-accounting systems to monitor day-to-day operations (Siderelis, 1978, See Who Can You Turn To?), park personnel have consistently encountered a need for an efficient method to process work orders, schedule park maintenance work, and document the completion of work. In all instances, there was either a cumbersome manual work order process or a lack of any degree of systematization in work scheduling.

PROGRAM SELECTION MENU
SELECT A FUNCTION BY ENTERING ITS NUMBER
1 - JOB ORDERING
2 - SCHEDULING
3 - JOB REPORTING
4 - STATUS REPORT
5 - EXIT MOSS

*Program Selection Menu.*

Crystos D. Siderelis, Ph.D., NCSU

### The Problem

As the problem was defined by Bentley and Siderelis, 1982 (See Who Can You Turn To?), facility and grounds maintenance typically consists of separate jobs occurring at different work sites throughout a city or regional area, with each job normally requiring the effort of one or more workers. Managers of even modest-sized operations must therefore choose from a combination of numerous jobs to set daily or weekly work schedules, and the most efficient schedules are difficult, if not impossible, to devise from a simple inspection of workers present.

Furthermore, the best annualized plans may be aborted due to unforeseen changes in numbers of people using a facility, plain neglect by maintenance workers, or the non-specific crises that invariably occur. And of course, current fuel prices are such that managers must combine and sequence jobs so that there is no wasted travel between work sites.

### The Solution

A solution to this problem was the design and development of a computerized Maintenance Scheduling and Management System (MS2) following the earlier development of the Workload Cost Tracking system (See Winter 1978 Trends, Vol. 15, No. 1). MS2 was customized for application to the National Park Service's Blue Ridge Parkway, field tested under the acronym of MOSS (Maintenance Operations and Scheduling System), and the resulting employee reactions were reported in the March 1982 issue of Parks and Recreation magazine. Briefly, MOSS was needed to perform three essential functions for maintenance workers at the Blue Ridge Parkway.

First, a procedure for reporting total maintenance deficiencies was needed so that work could be ordered and placed into an up-to-date file of work needing to be done.

Second, since budget limitations controlled the quantity of work that can be scheduled, the arrangement of jobs in priority order at a time when work could be effectively accomplished became all important.

In addition, allowing for computer-devised travel plans to direct workers to job sites, developing a file that could con-

tain all the jobs a subdistrict could afford in a fiscal year, and measuring work progress and maintaining job completion records was also necessary.

Third, limited budgets, minimum staffing, and unexpected work needs all contributed to the development of a maintenance backlog. For future planning and the budget justifications needed to support planned results, the quantity and type of deferred maintenance work had to be known if we were to develop an effective preventive maintenance operation and justify future maintenance needs. MOSS was designed to satisfy the aforementioned needs and it was computer programmed for use on the Apple II Plus micro-processor with one or two disk drives.

### How MS2 Works

MS2 performs seven essential functions for the maintenance manager: (1) job ordering, (2) job status, (3) job weeding, (4) job scheduling, (5) vehicle routing, (6) job reporting, and (7) job analysis and graphing.

### Job Ordering

Job ordering is the means by which maintenance deficiencies are entered into the computer for future worker action. Information is removed from a Maintenance Supervisor or foreman-approved Job Order Request form, Work Order, etc. and entered onto a video displayed work entry form. This information is then fed into the computer which automatically assigns to the job request a work order number and places the job in "backlog" to await future scheduling.

MS2 uses much the same information presently included on Work Orders in park departments. Entries include the work location, job classification (also known as the job tracking code, e.g., minor repair/upkeep, preventive maintenance, and regular maintenance recording categories), a description of the job, estimated or actual man-hours if available from previously reported work to MS2, budget accounting or work charge account code, bad or good weather job, and date job is due for completion. Man-hour estimates include set-up and break-down time, but do not include travel time. Routine (cosmetic), preventive, and cyclic work that recurs periodically is pre-programmed into the computer and is automatically re-scheduled on a recurring basis.

Since each maintenance management situation is different, the job classification scheme adopted for use must be as compatible with the existing situation as possible. Experience with Workload Cost Tracking (Siderelis, 1978, See Who Can You Turn To?) has shown that the job classification scheme need not be too detailed for use in most practical maintenance situations.

For example, in previously reported Workload Cost Tracking applications, workers were expected to collect data on the amount of time spent cleaning each picnic table, bathhouse, comfort station, picking up litter, and trim mowing. (See Chambliss and Hodges, 1978,' in Who Can You Turn To?)

This information was far too detailed for maintenance personnel to report and for managers to digest. It was suggested that one job classification replace these detailed maintenance activities for documentation purpose and be titled "regular maintenance — developed areas" (Bentley and Siderelis, 1982, See Who Can You Turn To?). If more detailed information is needed, a time study should be periodically conducted to capture precise data on the time spent by workers on individual work activities.

### Job Status

Jobs are maintained within a Job Status File. MS2 places jobs into five status categories:

1. Backlog—Jobs that have been sequenced (information from Job Ordering function) and are awaiting execution.
2. Holding—Jobs where work has been undertaken towards the completion of the job, but as yet is only partially complete, as in the case of a job awaiting the arrival of ordered materials.
3. In-progress—Work is presently being performed on jobs.
4. Complete—Jobs have been reported as finished.
5. Terminated—Jobs backlogged or holding with no work or partial work performed on them. This classification is particularly important due to budget constraints and the need to report all maintenance deficiencies. It provides a useful summary of those jobs which, if the resources had been available, could have been executed.

The status of jobs submitted to the computer and acted upon by

the maintenance work force can be obtained on demand through the computer-produced Job Status Report. Jobs are organized on the status report into those categories described above. Included with each job is the work number, requested due date, actual completion date, description of the job, work location, man-hours needed to complete the job, and in the holding category, the reported percent completion of the job.

### Job Weeding

Important to the scheduling of work is the due date for job completion. In designing MS2, two different approaches were tested to assess work priority. One procedure involved the assignment of urgency values through the use of a numerical scale that defined varying levels of urgency based on the extent and potential hazard of the maintenance deficiency. This technique was not only found to be time-consuming, but when left to the interpretation of the foreman, practically all jobs were given a high urgency.

The more satisfactory approach was to recognize the urgency of jobs based on an Earliest Due Date job sequence. Jobs in backlog or holding status categories whose proposed completion dates are before and during the scheduling period are scheduled based on the length of time they remain incomplete. Jobs with later due dates are then moved up the queue as work is scheduled and completed. The longer a job remains incomplete, the higher its urgency. Jobs with the same due dates are ordered based on the shortest task time.

This type of job sequencing process complements the park maintenance situation very well. One of the benefits of this sequencing procedure is the elimination of workers starting one job to partial completion, then moving onto the next job to partial completion, as if each and every job was a crisis.

Job weeding, a control function, was developed to cope with the problem of workers reporting more work deficiencies than budgeted man-hours available. Obviously, if every deficiency were reported, maintenance workers would today be working on last year's backlog of jobs. Job weeding then affords park managers the ability to terminate those jobs in backlog or holding status categories for which manpower or financial resources are not available. Or the park manager can elect to re-assign these jobs new due dates for scheduling.

The second job weeding alternative is for the park manager to assign a maximum tardiness time where maintenance jobs with due dates exceeding the tardiness measure are terminated automatically and placed in the terminated status category for the reassignment of due date.

### Job Scheduling

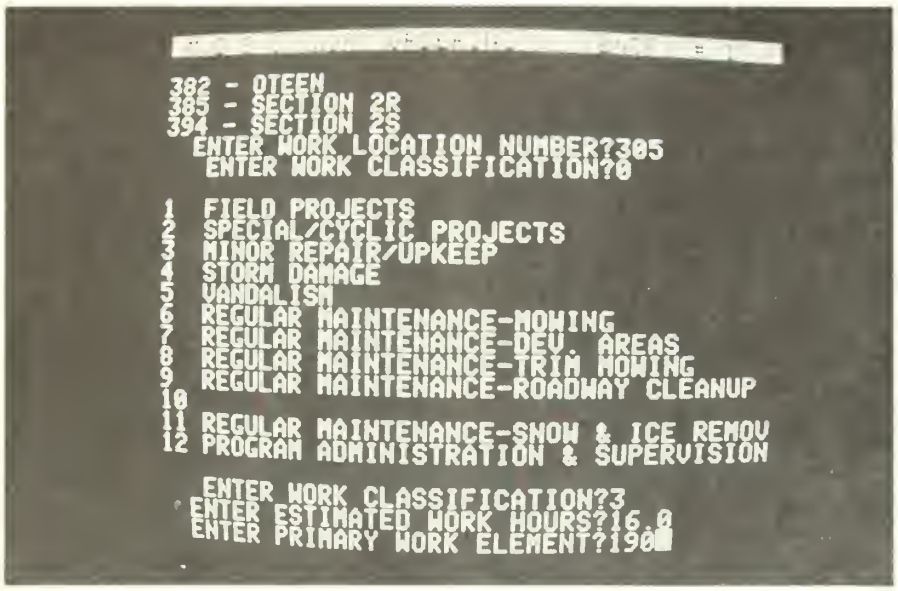
The job scheduling function was designed to outline the sequence of jobs in work planning to be followed on a daily or weekly basis. In scheduling work, the job classification scheme devised by the manager and foreman is very important. Job classifications should be set so that the jobs ordered complement the skills of individual workers or crew. In this manner, the foreman can request those jobs within a job classification that precisely meet worker skills, or a combination of two or more job codes.

In order to schedule jobs the foreman must provide the computer with the types of job classification (coded categories) for the scheduling period, the number of man-hours available during the scheduling period, and the work sites where the foreman is considering work to take place during the scheduling period.

The computer asks for this information in question form and literally holds a conversation with the foreman. The computer then searches the job status file for backlog and holding jobs to find jobs that meet the foreman's criteria. Various combinations of jobs are examined to arrive at the most feasible working schedule.

A mathematical program is used to generate three alternative working schedules subject to the man-hour constraint imposed by the foreman. The determination of the exact set of jobs to compose a working schedule can be a combinatorial exercise of staggering proportion for a practical application involving lengthy computation times. As an alternative to the enumeration technique, we developed a simple mathematical procedure that was computer programmed to run quite effectively on the Apple II Plus microprocessor (Siderelis and Blair, 1981, See Who Can You Turn To?).

In the discussion to follow, frequent reference will be made to two ordered sets of jobs. The working schedule will ultimately consist of a set of jobs, called the




*MOSS Work Ordering.*

*Cyrstos D. Sideretis, Ph.D., NCSU*

basic set, that will match, as closely as possible, the number of jobs which can be accomplished with the total man-hours available to the foreman without exceeding that number. The basic set will be a selection of jobs from a whole list of possible jobs which we will refer to as simply "the list." A working schedule is produced as follows:

Step 1. The maintenance foreman must specify the amount of man-hours available for an individual worker or crew throughout the scheduling period. This we will label as Tmax hours.

Step 2. From the job ordering function a record of each job is created and stored in the Job Status File. Based on a job's due date and the criteria specified by the foreman as to job classification(s) and work site(s), the priority of each job is set automatically by the computer as described in the next step.

Step 3. The computer creates the list of unassigned jobs, sequencing as to their earliest due dates and jobs with equivalent due dates by shortest task times. That is, a job with a higher urgency (earlier due date) is placed before those jobs with later due dates.

Step 4. The computer produces the first copy of the basic set by removing jobs from the top of the list and adding them to the basic set, and at the same time accumulating task times (man-hours) which we will call Ts. This process continues until the addition of the next job from the list when added to Ts would cause Ts to be greater than Tmax.

The process of assigning jobs to produce a working schedule could stop here. But a single version of the schedule may be inadequate to meet the contingencies on a given work day. For this reason a total of three optional versions of the working schedule are produced by the computer so that the foreman has a choice that will most fully meet his/her needs and utilize available man-hours. The computer devises these three schedules according to the following steps in the modification process. (These steps are not to be confused with the versions of the schedules themselves; rather, three possible combinations of steps are produced which are described below.)

Step 5(a). The Forward Exchange. This step is necessary when the first job on the list is too large to be added to the basic set, yet there are still man-hours available for a smaller job to be added from further down the list. Let Ts+ denote the accumulated time to complete the working schedule if the first job on the list, say job k, is added to the basic set.

Note that Ts, the total time to complete all tasks on the working schedule, is less than Tmax, and Tmax is less than Ts+ where Ts+ = tk + Ts. In this instance the computer reviews the basic set from the bottom to the top to find the first job, say job n, whose completion time (tn), when substracted from ts+ is less than or equal to Tmax. If such a job is found, the job at the top of the list (job k) is exchanged with job n in the basic set. The jobs in both sets are placed in the proper order as described in Step 3.

Step 5(b). The Backward Exchange. The computer deletes the last job in the basic set — we will call the result Ts—. It then reviews the list from top to bottom to find the first job, say job k, whose time requirement, when added to Ts—, does not exceed Tmax. Both jobs (i.e., k and the job originally at the bottom of the basic set) are placed in their proper sequencing.

Step 5(c). The Expansion. The computer reviews the list from top to bottom and adds a job to the basic set, i.e., removes it from the list, if the job, say job k, is less than or equal to Tmax minus the accumulated task time (Ts) in the working schedule. The three working schedules are: (1) The basic set from Step 4 followed by 5(c), (2) the basic set from 5(a) followed by 5(c), and (3) the basic set from 5(b) followed by 5(c). The maintenance foreman can interact with the computer at this point to request job exchanges which he/she may prefer, based on his/her experience and other qualitative factors. The computer then prints out three more alternative work schedules.

Once one of the three working schedules is identified, the computer will print job tickets that the foreman can hand to workers describing the job to be done, job order number, work site, job classification, and projected due date. Or the foreman can put off the printing of a working schedule and first request that a travel plan be devised by the computer and included in the schedule. The travel plan groups scheduled jobs by work sites, and accounts for travel time to and from and between work sites.

**Vehicle Routing**

The travel plan is derived from the work schedule selected by the foreman. This schedule is produced by a separate computer program that uses work site codes of jobs scheduled and a travel matrix in which the amount of travel time in man-hours to move between sites is recorded.

Travel times are assumed to be symmetrical; that is, the amount of time to travel from work site A to work site B is the same as from site B to site A. Once loaded into the computer's storage device, the travel matrix is loaded automatically into the computer's memory in the future. The travel matrix needs to be loaded only once into the computer. The computer functions to evaluate the amount of travel time between work sites, with the starting and ending work sites provided by the foreman, to minimize the amount of travel time workers will spend moving between all scheduled work sites.

The problem of routing workers to assigned tasks at different locations is referred to as the "traveling salesman" problem. This problem and its potential solutions are discussed by Baker (1974, See Who Can You Turn To?) and in most textbooks on Operations Research. The mathematical formulation adopted for MS2 was presented by Krog and Thompson (1964, See Who Can You Turn To?). It did not necessitate a large amount of computer memory required of the more exact solutions, and performed well against other mathematical formulations on a variety of test problems (Rieter and Sherman, 1965, See Who Can You Turn To?). This technique could be performed manually provided one has the appropriate amount of time and patience.

The method begins by the foreman selecting starting and ending work sites. This constitutes a tour of length 2. Then a third work site is inserted to minimize the resulting three-site tour; then a fourth work site is inserted, and so on, until a complete tour of work sites has been constructed.

For example, the "seed" pair of work sites 1-2 form a starting and ending two-site tour. A three-site tour is selected by evaluating the tours 1-3-2 since site 1 is the starting site and site 2 is the ending site. A four-site tour is formed by inserting site 4 somewhere in the three-site tour and evaluating the shorter tour. In other words, the shorter tour is selected among 1-3-4-2 and 1-4-3-2. At the last stage, a full tour is selected from among the work site candidates.

### Job Reporting

After a work plan is designated by the foreman, the computer prints job tickets listing pertinent information about each job (work description, work site, requested due date, and job classification), and three items to be completed by the foreman once the job is complete. Reported will be the amount of man-hours spent on the job, the percentage of the job completed, date job completed, and optional notes as to the maintenance equipment and materials or supplies used on the job.

This information is then entered into the computer where it is used to update scheduled (in-progress status) jobs in the Job Status File for printing the labor tracking device, the Job Status Report, described earlier. Even with the planned work schedules it is impossible to predict unforeseen jobs, such as equipment or facility malfunctions or other emergencies. Consequently, a feature for reporting unscheduled jobs was included as part of the reporting function. In addition, jobs may be reported as partially complete and placed in the holding status category to await future scheduling action. The percent completion is reported by the foreman, while the man-hours remaining to complete the job are calculated in the computer by the following formula.

The resulting number of man-hours for job completion is recorded along with the job and placed in the holding status category within the Job Status File. From job ticket information a variety of reports can be generated by the computer. These management reports can be produced through customized computer programs or with "data management" computer programs currently available on the micro-processor market. One such customized computer program useful in analyzing maintenance work reported through MS2 was written by the author and called "Job Analysis and Control Graph" (see *A Computerized Maintenance Analysis and Control Procedure* elsewhere in this issue).

### Conclusion

The complexity of the park manager's job, given the multitude of factors he or she has to consider in making decisions, as well as the number of economic pressures facing him or her requires the use of an automated decision-support system for maintenance like MS2. Such a computerized system ensures that budgets will be met, necessary work will be completed on time, and crucial information can be stored and retrieved from which important future decisions will be made.

*C.D. Siderelis, PhD, is an associate professor of Recreation Resources and Administration at North Carolina State University, 4008 Biltmore Hall, Raleigh, NC, 27650.*

# Scheduling of Outdoor Athletic Facilities

*by Dan Dahlquist and Ron Bullock*

The City of Seattle Parks and Recreation Department, through its Recreation Information Office, has been scheduling outdoor athletic facilities with the aid of a computer since June of 1980. The Recreation Information Office (RIO) also schedules all of the Seattle School District's outdoor athletic facilities. Combining the two agencies' facilities, RIO has responsibility for the scheduling of 185 different athletic sites throughout the Greater Seattle area.

The decision to use a computer to schedule athletic events developed from the rapid growth of athletic uses, and the need for accurate and timely statistical information. In 1976, the Seattle City Council undertook a study of recreation services provided by the Parks Department. The statistical information for the study had to be manually assembled by the Recreation Division. RIO staff spent many hours condensing and correlating scheduling data into usable information for the Council study.

Once assembled, the planning and program value of the information added momentum to the Department's need for regular production of usage reports. The RIO staff subsequently began systems analysis of its scheduling functions, with the objective of developing a formal management information system. The analysis concluded that a computer was essential to operate the system in a timely and cost-effective manner.

In 1978, the Department obtained a computer terminal with a telephone hookup to the City's Univac 90/80 computer. With the help of a Work Study student, the RIO staff started work on a ballfield league scheduling system that would lend itself to a computer application. A system was developed and programs were written, debugged, and tested.

*John Bates, Seattle (WA)*

*Artificially surfaced Washington Park Playfield located in Seattle's Arboretum.*

Beginning in June, 1980, a fully operational computer-assisted League Scheduling System was implemented. The programs were written in Univac's version of BASIC. Reports are generated by MARK IV and BASIC. The system now handles scheduling for over 600 softball/baseball teams and over 750 soccer/rugby/lacrosse/cricket teams. In one year's time, the system will handle over 70,000 individually scheduled league games and practices.

The Ballfield Scheduling Program (BSP) has been divided into six categories which are interrelated and dependent upon each other. Prior to the BSP, these six individual functions were done manually under the following categories:

1. League Scheduling/Reports
2. Maintenance Reports
3. Ballfield Availability Reports
4. Ballfield Closure Reports
5. Ballfield Attributes
6. Organization Reports

### League Scheduling/Reports

Prior to the development of the computer-assisted BSP, all field scheduling was done manually. The latest system used was that of transaction cards, with one card showing all scheduled activities for a field for one month. Prior scheduling was done out of a notebook with each field scheduling on a full page for a full season and/or year.

When more fields built with 1969 Forward Thrust Bond Issue monies came on line and the demand for playing time by organized groups reached all-time highs, RIO staff concluded that a better, more efficient scheduling system was needed.

The League Scheduling System (LSS) of the BSP was then created by RIO staff as a more rapid and accurate means of scheduling sports leagues on the Seattle Department of Parks and Recreation's athletic fields.

## Preprogramming

According to a Department of Parks and Recreation's policy, fields are scheduled on a historical basis with past users having priority. This policy, which contains an expansion clause for leagues, allowed the Department in 1977 to institute a new method of scheduling leagues called preprogramming.

Prior to 1977, various sports leagues and organizations submitted schedules to the scheduling staff with no regard for other leagues' needs or the caliber of their play; thus causing overusage of some fields. Schedules were submitted for departmental approval ten days to two weeks before play was to begin, creating a burden on the RIO staff to schedule and approve 90% of all submitted game schedules in short time frames.

Preprogramming was created to eliminate this situation. The concept was simple. Instead of the leagues submitting schedules to RIO staff, staff would preprogram a schedule of fields that the leagues could use, based on their prior usage. The results were positive for all parties concerned.

Preprogramming was successful in part due to the expansion clause in the policy and procedure for field scheduling. This clause allowed for expansion, but only upon written request three months prior to the start of a season. Without a request for expansion, the usage patterns remained the same and RIO staff was able to start preprogramming league schedules months in advance of a season's start.

There are many advantages to this system. It allows for fewer scheduling errors due to the increased lead time available for preparation. Staff is able to double and triple check schedules and distribute them faster to the leagues. Leagues now have time to pair up teams and present their schedules to the RIO staff for a double check weeks prior to their season's start. The percentage of rescheduling is now approximately 3-5% (as compared to 25-30% prior to preprogramming).

Leagues have favored this type of scheduling since the first year it was introduced. League organizers' jobs have been made easier with the knowledge that their field demands have been reserved automatically for their organizations. Another favorable aspect is that double-booking errors have gone from 3-5% to less than 1/10 of 1%.

Prior to the BSP, manual preparation of the preprogrammed schedules took one RIO staff person two-to-three months to complete. Utilizing the League Scheduling System of the BSP, this time has been reduced to one-and-a-half to two weeks of data entry, with another one-to-two-weeks to double-check the computer-generated printouts of the league schedules. These printed schedules are then distributed to the organizations at the annual league scheduling meetings held twice a year.

### Maintenance Reports

Utilizing the data entered for the League Scheduling System, Ballfield Maintenance Reports are generated on a weekly basis for the Grounds Maintenance Division. These reports help staff determine what maintenance needs to be scheduled on the fields. The reports are printed in six sections, corresponding to the Department's six different Grounds Maintenance Districts. Within the reports, fields are listed by the way the District crews are organizationally structured.

Prior to the implementation of the BSP, it took approximately 32 man-hours to manually compile a one-week report for all facilities that were scheduled. With the automated system, the same report takes approximately 20 minutes to print.

### Ballfields Availability Reports

Due to a need to reschedule games and allocate time for practices, scheduling staff has a continual need to know what sites

are available at any particular time. The capability for RIO staff to print out a Ballfield Availability Report was provided as part of the League Scheduling System. This report lists all scheduled and non-scheduled times on all requested fields for a time frame chosen by staff. All scheduled times are shown with the users' Organization Code Numbers so staff will know who the scheduled users are. The Organization Code is a four digit number given to every user. (This is explained in greater detail in Section Six.) Staff may choose to use this report as a manual means of scheduling, and enter data later, or use it to find available sites and use the automated system.

Fields shown on the Ballfield Availability Report may be selected by the scheduler from programmed options. These include all fields, lighted fields only, or selected fields. These options generate a quicker printout since individual field names do not need to be entered.

### Ballfield Closure Reports

Often it is necessary to have some fields closed and unscheduled such as when the outfield portion of a softball/baseball diamond becomes a soccer/football field during the fall and winter months. The field is treated as two separate ballfields by the League Scheduling System. One ballfield will have attributes describing it as a softball/baseball field and the other as a soccer/football field. The League Scheduling System prevents the use of a softball/baseball field by users playing sports other than softball or baseball. The same is true for softball/baseball users attempting to use a soccer or football field. In order that softball/baseball teams and soccer/football teams do not wind up actually using the same field at the same time, the softball/baseball field will be closed during soccer/football season and vice versa.

*Junior football at the Riverview Playfield in Seattle, WA.*

*John Bates, Seattle (WA)*

A Ballfield Closure Report may be generated by the scheduling staff to show the months that each field is open and closed. Although programmed in advance, changes may occur any time of the year if the Grounds Maintenance staff deems a field should be closed due to deteriorating physical conditions.

### Field Attributes

Before the Ballfield Scheduling Program could be instituted, the particular attributes of each field had to be identified and catalogued. Thirteen different features for each field are identified in this program. Examples of these features are base peg distances, lights, youth size only, and goal post type (soccer or football). These features or attributes are checked by the League Scheduling System at the time a usage is entered and causes a rejection if a contradiction is detected.

For example, if a game were scheduled from 9:00 pm to 10:30 pm and the field did not have lights, the entry would be rejected. The program is written to tell the user what error has occurred. In the case above, the program would indicate that the field did not have lights and usages could not be scheduled later than 9:10 pm. This system allows the novice scheduler the ability to select a field for a particular usage and know the facility can accommodate that usage.

### Organizations

To expedite data entry, user organizations are assigned a unique four digit number. The

John Bates, Seattle (WA)

*Soccer play at Lower Woodland (Seattle, WA).*

first digit indicates the sport; the second, the sex; and the third and fourth identify the organization. Through experience, RIO staff find it easier to enter a four digit number than an organizational name or an abbreviation if the name is long. The four digit identification system also lends itself to easy statistical data generation.

### Statistics

Prior to the development of the computer-assisted League Scheduling System, all statistics were generated manually from the transaction cards mentioned earlier. Because of budget cutbacks, the manual preparation of usage statistics was suspended in 1979. The League Scheduling System now offers the opportunity to generate the following statistics:

1. Number of games or practices
   a. by field
   b. by sport
   c. by sex
   d. by age group (adult vs. youth)
2. Number of participants
   a. by field
   b. by sport
   c. by sex
   d. by age group
3. Number of hours of field light usage
   a. by field
   b. by organization

These statistics aid RIO staff in making scheduling decisions, in budget preparation, in billing user groups individual usage fees, and in answering numerous requests for usage data not only from City and Department planners, but from many other state and national recreational agencies. One very beneficial use of these statistics has been the ability of Department staff to correlate field usage and patterns with field conditions and maintenance practices. The results of the correlations have been the basis for more equitable distribution of demand throughout the system and a subsequent reduction in athletic field maintenance costs.

## Conclusion

The utilization of a computer in athletic field scheduling has been a success in Seattle. One of the keys to success was the development of the League Scheduling System prior to the introduction of the computer. The addition of the computer enhanced the system and added the ability to quickly generate valuable scheduling data reports.

Most importantly, the computer has enhanced the Department's ability to meet the needs of Seattle's athletic community. Timely and accurate data can now be produced inexpensively for the Grounds Maintenance Division, and scheduling errors have been drastically reduced. Four teams showing up at the same time has not been eliminated, but it now happens about as frequently as Mount Saint Helens erupts.

*Dan Dahlquist is a Program Coordinator with management responsibilities for the Seattle Department of Parks and Recreation Information Office.*

*Ron Bullock is a Computer Programmer and Systems Analyst for the Seattle Department of Parks and Recreation.*

# Labor Cost-Tracking System

*by Richard J. Schroth, Re.D.*

Other than using the computer for basic financial applications such as payroll and accounting, probably one of the first departmental application areas for the computer is tracking the cost of maintaining park areas or particular recreation programs. This is a primary starting point since most agencies are faced with increased public concern for governmental accountability and efficiencies.

Too often, however, many departments turn to the computer as the key to solving management dilemmas without giving consideration to all of the alternatives. Before implementing labor cost-tracking, careful consideration should be given to the need to have and maintain such detailed information. Once such a program is initiated, it must then become an integral part of the daily work program of the department.

The mistake should not be made of turning to an extensive commitment just to answer occasional inquiries by a board or council member. Many times, isloated labor samplings from the field can be used to determine general cost-related figures. We raise this point since there can be major staff and operating expenses involved in the development of a computer system.

There are many other important considerations that need to be taken into account before a department embarks on the development of a labor cost-tracking system. One of the primary issues is the fact that the implementation of a labor tracking system is one of the few things your agency does that will affect every employee. This results from the fact that every individual must in some way or another report all daily activities.

Problems arise when one begins to look at the multi-level educational training each employee has received. Some employees may barely read and write, whereas others may have many years of formal education.

It has been our experience that if the time cards (data collection forms) are structured properly, the impact on those with lower reading and writing skills can be overcome.

Generally, we have found that after implementation of the labor costing system, labor force comments regarding the "additional paperwork" do increase. The challenge, therefore, is to minimize the impact. Resistance to such reporting can range anywhere from a week or two of complaints to outright defiance towards new reporting methods. It has been reported that in some agencies threats of withholding paychecks and dismissal actions were necessary to insure compliance. We have never had such dramatic instances with our current labor reporting system and our implementation has been clouded with only a few complaints. You can expect, however, that you will have some "startup complaints."

## Implementation Methods

The following elements were found to contribute to a positive implementation process.

1. *Begin slowly with a small group, gradually introducing labor reporting into the system, while improving the forms with each expansion.* In utilizing this method, both management and the employees have a chance to analyze the recording procedures, quality, and usefulness of the data.

   In our case we chose a park division of approximately 50-70 persons for participation. This group was already keeping some field records on work they performed and were already familiar with doing "paperwork" as part of their normal routine. We replaced their old reporting methods with the new system, which the individuals found was actually easier to use.

   As this group of employees used the new time sheets for a one-year test period, other park divisions became exposed to the new time recording methods through discussions with their fellow workers. We were able to make significant changes to our original form design based on constructive supervisor and employee comments. As the forms became more refined, and as a broader spectrum of the labor force became exposed to and used the time recording sheets, the computer impact throughout the entire department was minimized.

2. *Design the labor reporting forms with the maintenance worker in mind, not the computer!* One of the most unfortunate things that often occurs is to design a reporting form for the computer, rather than for the individual. Although a computer's requirement for data in precise forms is essential for the system to properly operate, the system can fail just as badly if the individuals responsible for recording the data are not considered on an

MARYLAND NATIONAL CAPITAL PARK AND PLANNING COMMISSION

HORTICULTURE AND FORESTRY DIVISION
HORTICULTURE SECTION

Figure 1

NAME _____ (PRINT)

TODAY'S DATE _____

PARK NAME _____ PARK CODE _____

| TASK | HOURS |
|---|---|
| [] Landscape Maintenance | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Tree Maintenance | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Turf Development | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Planting - All Types | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Landscape Construction | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Turf Maintenance | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Ballfield Maintenance | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Fountains, Pools, Ponds | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] CIP Chargeback | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Other | [1] [2] [3] [4] [5] [6] [7]*[1/2] |

Hours worked due to vandalism: [1] [2] [3] [4] [5] [6] [7]*[1/2]

PARK NAME _____ PARK CODE _____

| TASK | HOURS |
|---|---|
| [] Landscape Maintenance | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Tree maintenance | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Turf Development | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
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| [] Tree maintenance | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Turf Development | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
| [] Planting - All Types | [1] [2] [3] [4] [5] [6] [7]*[1/2] |
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Hours worked due to vandalism: [1] [2] [3] [4] [5] [6] [7]*[1/2]

EMPLOYEE'S SIGNATURE _____

TOTAL PAY HOURS - -

even higher basis. Figure 1 illustrates a typical time card used by our crews. The time cards were designed with the following criteria in mind:

a. ease of use by the employee
b. minimize the amount of writing by the employee
c. minimize the amount of time an employee must spend recording time information
d. provide a mechanism where legibility can be optimized
e. provide a system which may be machine-interpreted, minimizing data entry.

3. *Establish your agency's level of reporting information based on actual requirements, not what would be "nice or interesting."* When systems such as labor-tracking are brought into a department, the tendency is to try to gather too much detailed information. This generally results from some infrequent and obscure request that was made for information which was difficult to report. Avoiding the pitfall of *too much information* will provide you with a much cleaner and easier method of cost-tracking implementation and continuation. This is not meant to discourage the gathering of some isolated detailed levels of job task information.

What it is meant to say, however, is that there is a price the organization must pay for the gathering of comprehensive information. The price goes higher as the level of detail is increased. Price, in this case, is calculated in terms of more time filling in reporting forms, staff member morale levels, and a greater potential for decreased accuracy in the reporting of the information.

4. *Work closely with the staff which will be using the form - in the design as well as implementation phases.* In our agency's time reporting design, we worked with each of our divisions to try to establish the level of detail they needed for better management. This level was then matched against the requirements of our administrative office. By combining the two, we were then assured of supplying useful information to each division while at the same time maintaining the integrity of consistent reporting for overall park administrative purposes.

5. *If you expect the workers to code park or program area information on a time card, provide them with a reference tool that is easy to use, handy to keep, and easy to update.* At the Maryland-National Capital Park and Planning Commission, we developed a Park Reference Guide for our staff. This document was designed to be reproduced on a six-month update basis, which would allow us to keep the crews well informed on new park changes. We show park location maps, park code information used in identifying a park for the computer, safety information, and room to incorporate other useful job-related information.

6. *The more frequent the collection of time cards, the more reliable is the data.* In the coming months, we will be conducting field research to determine the accuracy of this statement. For the present, however, we believe that the collection of a crew member's time card on a daily basis provides us with the most accurate means of data retrieval.

7. *Whatever level of information you are trying to retrieve from the field, recognize there must be a commitment by the employee, the supervisor and management to obtain it.* Organizational teamwork is the only answer to a successful labor tracking system. All levels of participation within the organization must have some accomplished understanding of how recording their time and the tasks at particular parks affects the overall departmental work program. In order to successfully establish these levels of understanding, crew, foreman, supervisory and administrative staff meetings need to be held during the initial implementation week.

8. *The task of recording information by the employee must be thought of as part of the job and "not something additional."* Referencing

the point made in Item Number 7 and during these meetings, it must be made clear *by the Director* that the proper recording of labor activity is just as important as any other job task that an individual performs for the day. The comments that "they aren't increasing my salary to do extra paperwork" should be laid to rest. The "paperwork" *must* be recognized as part of their job with additional time *taken from* their other job duties to complete the records. As stated earlier, there is a definite price to pay if accurate and continuing labor cost reports are to be kept. In summary, we feel our labor reporting system is working reasonably well. At the same time, we are exploring other areas which will help make the labor cost-tracking a much more useful management tool. Some of the future areas of our research will include:

- Reliability Testing of Field Data
- Performance Measurement Standards
- Personnel Evaluation Criteria related to Work Performance
- Maintenance Scheduling

**Other Computer-Related Areas at M-NCPPC**

The Maryland-National Capital Park and Planning Commission is presently engaged in exploring many other areas to utilize computer technology such as:

- Utility Cost Monitoring
- Management Graphics
- Plant Records Management
- Nursery Management
- Botanical Management
- Contract Reporting and Processing
- Gas Records
- Capital Improvements Reporting
- Facility Planning
- Long-Range Budget Projections
- Police Ticketing
- Land Records Management
- Park Property Management
- Recreational Needs Analysis
- Economic Modeling for Park Enterprise Functions
- Vehicle Preventive Maintenance
- Police Record Keeping Systems

The above programs have either been installed or are currently being brought on line. Our commitment to staff/user training is also as varied as the programs which we are attempting to accomplish. We consider our future plans in using the computer to improve our park management and public services bounded only by the limits of our imagination! Future requests for information regarding the programs we have outlined or inquiries into our long-range management plans should be addressed to:

Stanton G. Ernst
Director of Parks
Maryland-National
Capital Park & Planning Commission
9500 Brunett Avenue
Silver Spring, Maryland 20901

*Richard Schroth, Re.D., is a management analyst with the Maryland-National Capital Park and Planning Commission in Silver Spring, MD.*

# Computer Assisted Reservations

*by Richard H. Keifer*

Primarily a resource based regional park system, the Hennepin County Park Reserve District is a system of large parks (150 acres to 5,000 acres) in the largest populated county in Minnesota (approximately 1,000,000 people). Presently, the District comprises over 23,000 acres of parkland, employs 140 full time and 300 to 400 seasonal personnel and manages a budget nearing $6 million.

## Computerization

The use of computers in the District started in the early 1970's through the use of Hennepin County government's computer. In the mid 1970's a service bureau of Hennepin County was assigned to aid the District in providing specific park and recreation applications. After two years, it was agreed that there existed a potential for unique programming needs which could not be easily addressed without adequate exposure to an operating park system. In order to accomplish this, the District hired a computer professional.

During the past three and a half years, equipment totaling $75,000 has been installed at six park sites, providing for the entry and reporting of management information in various forms. Some of the major systems installed include: budgeting, payroll, detail project history (based on a general ledger), budgeted versus actual expenditures, word processing and site reservations.

The staff consists of three professionals and secretarial staff trained in data entry at five parks. The budget for the management information section is $170,000 for fiscal 1983.

*Hennepin County Park Reserve District*

*This memorial flower garden can be reserved for weddings.*

## Reservations

The Park Reserve District doesn't involve itself in ball diamonds, tennis courts, etc.; it emphasizes a more natural experience instead. To this end, both reservation and non-reservation picnicking and camping is provided at seven parks. No two picnic or camping areas are the same; thus a multitude of information must be ''remembered'' on each site. Along with camping and picnicking reservations, reservations for large bar-b-que grills and weddings at a memorial flower garden are also provided. All reservations are taken at the headquarters site.

These parameters, coupled with a high turnover rate in the position handling the reservations, caused management to ask for help through computerization. A study began in October 1981, and it was quickly learned that the manual system was having problems for very good reasons. A total of 700 reservations were taken in 1980. In 1981, this exploded to 1700. Many of the reservation camping areas were scheduled to be split in 1982, thus creating the potential for untold additional reservations. The high rate of turnover, the chaos displayed by all involved in 1981 and the fact that the position didn't have a back-up person, made it obvious that a computer could aid in the process. The areas of reservations targeted for computerization included:

- printing permits (copies at the various parks)
- displaying the availability of a site
- updating information
- usage reports
- display of all information pertaining to a site or park
- display of all fees relating to site and equipment rental.

## Solution

The most obvious solution was to install a reservation system on the main computer at the service bureau. This proved to be a costly venture because the cost of necessary equipment would be $5,500, plus nearly $5,000 in

*Hennepin County Park Reserve District*

*Group picnic area at Hennepin County Park Reserve District.*

development costs.

A second solution was to use a micro-computer in conjunction with the larger computer. Because the District was experiencing a shortage of funds due to state financial problems, it was decided that the second solution should be investigated further. A company named VISICORP marketed some software which could be used to set up our information and the software cost only $350.

As mentioned before, development of the necessary software would cost nearly $5,000, so this alternative seemed very attractive. Further investigation found that we could use our existing printers and save the cost of purchasing new ones. It must also be noted that reliability of the system was a main concern. The system must be available every working hour. From a public relations standpoint, a prospective user should not call in, just to be turned away due to a computer malfunction. This must be kept to a minimum. The existing computer system had become very reliable, but a new computer was due to be installed during the summer of 1982. With many new installations comes substantial down-time, which contrasts with the Apple computer's great track record and repairs which can be done within hours.

The decision was made to purchase an Apple II Plus for $3,500 which included: Apple II Plus Computer with 48k of internal memory, two disk drives, a video display monitor, VISICORP Software's VISIDEX and VISITERM programs. The VISIDEX program is used to display, update, retrieve and print certain data and the VISITERM program is used to transfer the data to the service bureau's computer for formatting prior to printing use permits and usage reports.

## Features

The system is designed to provide retrieval of the following information:

- fees charged
- general information on each site
- general information on each park
- reservations made.

The system is designed to provide updating of:

- sites available
- information for printing permits.

Retrieving information for reviewing or updating is accomplished through the use of a "keyword" or "index" on each record. All information can be set up to be indexed by many keywords. There are no maximum number of keywords, but they are limited by a combined maximum of 256 characters. This allows for the creation of keywords which are meaningful to the application.

Site availability information is displayed on a one-week basis, starting with Wednesday. The particular one-week period can be selected two ways. First, it can be selected by entering the park and month codes (four characters). This will display all sites for the month, one week at a time. Second, it can be selected by entering the park, month and day codes (six characters). This will display all sites the particular week that the day falls in. General information, along with fee information, is selected by a unique keyword. This information is retrieved when a particular question on a park or site is made, such as:

- location
- size of site
- maximum number of people
- water availability
- etc.

After retrieving the site information, it is quickly determined if the site is available or if another site is available. If the site needed is available, the record is updated with a one-character letter. Next, all information which is needed for the printing of the permit is entered. This record is assigned the following keywords or indexes:

- user's name
- affiliated organization (if any)
- week of use beginning date
- date of entry.

## Keywords

A major plus of the system is data retrieval through the use of keywords. The keywords were designed to be easy to use and utilize abbreviations which comprise names known and used by most park personnel.

For example, all site and general data pertaining to a particular park begins with that park's two position abbreviation. The next portion of the keyword represents either camping, picnicking, grills or weddings. The standard for this is one alpha character; the letter C - camping, P - picnicking, G - grills and W - weddings. The final portion of the keyword is the actual name of the site. In our system, this can be as long as 15 characters, but there is no limit.

When the money for the reservation arrives, the record which contains the permit information is retrieved and updated with amount received. This is done through the use of the user's name or organization. At this time, the information is transferred to a separate disk for transfer to the Hennepin County service bureau's computer.

On a minimum of twice a week, the permit information is reformatted and printed, with copies being distributed through printing at the needed locations. There are two reasons why we print use permits through the use of the Hennepin County service bureau's computer.

First, all of our locations are connected to this computer which allows for two benefits. The permits can be printed at the locations needed and they are stored to be printed when time permits. Second, the Apple need not be tied up printing. Although it takes some time to transfer the data, it is comparatively a fraction of the time. For protection, all information is backed-up at noon and at the end of each day. This, along with the fact that site information and permit information are kept on separate disks, provides for ample back-up.

## Implementation

The decision to purchase was made in mid—February of 1982. By that time, nearly 100 reservations had been taken on the manual system. The pressure was on to develop and install the system as soon as possible. Within 30 days (200 man-hours) the system was ready for input, but printing of permits, reports and a manual were not complete. The printing had to wait for preparation of computer forms, which was to take four to six weeks. It was decided to wait until the new reservation clerk started (in four weeks) to implement the system. During that time, the manual was completed, a back-up person was trained and approximately three hundred reservations were input.

As fate would have it, the clerk started at the beginning of the busiest reservation time. This, coupled with the fact that she had never touched a computer, created some anxiety. As our reservation season draws to a close, we have taken nearly 2,000 reservations. During this time, we have had two occasions to stop reservations due to equipment problems. In both cases, the problem was due to the diskette being put in at an angle. Each problem took ten minutes to solve and the data was not damaged.

## Analysis

The system, as designed, is serving our needs well. One key to our success in using a micro computer is the fact that all of our reservations are made at one location. Another plus is that the Apple is easy to use and understand. The final appeal is the use of VISICORP's programs, which are easy to use and adaptable.

## Future Reservations

This winter, the Apple computer will be used to take cross country ski lesson reservations. Lessons are given at several locations on various weekends during January and February. Problems which plagued us in the past included overbooking, underbooking, not having complete information, thus not being able to contact the person if we had bad weather; not collecting all of the fees and finally, not having an up-to-date list of the people taking the lessons. Although the system has yet to be designed, I believe it will parallel our original system quite closely, as well as have its own unique features.

*Richard H. Keifer is a management information specialist with the Hennepin County Park Reserve District in Minnesota.*

# Sesame Place

*by Sandra G. Hanna*

*Sesame Place, Langhorne, PA.*

*Automated Muppet Oscar the Grouch looks and sounds like the real Sesame Street character, but actually has been pre-programmed in voice, movement and setting to duplicate the original.*

*Sesame Place, Langhorne, PA.*

*This father and daughter team enjoy the challenge of one of the nearly 60 computer games at Sesame Place.*

For children and their parents, discovering new things about themselves and the world around them is what a day in Sesame Place is all about. Sesame Place opened in Langhorne, Pennsylvania in 1980, through the joint efforts of Busch Entertainment Corporation, owners and operators of Busch Gardens theme parks, and the Children's Television Workshop, creators of "Sesame Street," "The Electric Company" and other educational television programs.

A second Sesame Place was opened in Irving, Texas in 1982. Additional Sesame Place parks are planned during the next few years in selected locations around the country.

The focus of Sesame Place is to encourage skill building and promote the park philosophy of learning through doing. Families explore together and experience such concepts as problem solving with a computer, learning about the law of gravity through scientific exhibits, and feeling the thrill and excitement of completing a new physical challenge such as scaling cargo nets or climbing a slippery vinyl mountain.

Sesame Place consists of five separate play and learn areas: The Computer Gallery, which houses one of the largest collections of computer games in the country; The Sesame Science Studio, which provides hands-on experiments in sound, energy and light; more than 40 outdoor play elements that encourage and support physical activity for both children and adults; The Sesame Food Factory, where an open kitchen and a menu of nutritional foods give families exposure to better eating habits; and Mr. Hooper's Store which encourages children to browse and play as they shop.

### Computer Gallery

The Computer Gallery is a two-level building which houses more than 60 specially designed stand-alone micro-computers with a simplified keyboard that arranges letters in alphabetical order to make them easier for youngsters to use. The games combine fun and learning by challenging the skills of children of all age levels. They invite players to solve puzzles, form patterns, make words and letters, create musical compositions and test hand-eye coordination.

A game called "Lemonade" demonstrates how to use the computer to solve the economical problems of running a lemonade stand at a profit. "Tune-In" invites players to compose a melody by arranging musical phrases that are pre-programmed into the computer. "Fire Fly" tests eye-hand coordination as players try to see how many windows in a city they can light up with a flash of light. For younger children, there are more simple games like "Mup-o-Matic" in which players guess the Muppet character emerging in the video patterns. Although the techniques are similar to the more commercial arcade games, the games at Sesame Place are

designed to be non-competitive and non-violent.

### Additional Uses

During the late fall and winter months, when the 3½-acre park is officially closed for the season, after-school computer workshops are offered for children, parents and teachers, with parents and teachers among the most enthusiastic students.

In conjunction with the Boy Scouts and Girl Scouts, Sesame Place offers an opportunity to fulfill badge requirements at the park. There are science experiments, computer projects, and outdoor tests of skill that scouts can complete to gain scouting badges.

When the idea for the Computer Gallery was first conceived, child development specialists, educators and scientists were consulted in designing the project. Children also tested the computer games to make certain that they enjoyed them and could understand the instructions.

While children adapt easily to the new computer technology, some parents actually have to overcome fear of using the computer. However, once parents sit down at the specially designed keyboard, the fear subsides and they quickly begin to enjoy the games with their children.

Because Sesame Place is based on the popular TV show "Sesame Street," many children already are familiar with the friendly characters that appear on the computer screen. Muppet characters "Bert" and "Ernie," among others, teach children about numbers, pictures and concepts.

### Automatic Muppets

In 1982, Sesame Place added a new entertainment element in the form of Automated Muppets. These are computer-programmed performances of the Sesame Street Muppet characters Oscar the Grouch and the Cookie Monster.

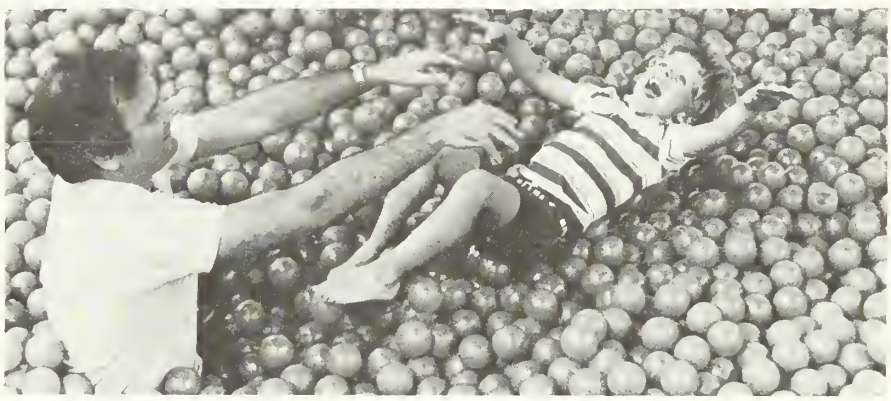
The Automated Muppets were developed jointly by Jim Henson & Associates, creators of the Muppets, and Astrosystems, Inc., (ASI) which provided the engineering and technical expertise.

Through the automation process, the Muppets speak, tell jokes, sing and laugh just as they do on Sesame Street. The characters have their own displays at Sesame Place with Cookie performing in the Sesame Food Factory and Oscar just behind Mr. Hooper's Store.

The automation process involved duplicating, by computer, the movements of Frank Oz (Cookie Monster) and Carroll Spinney (Oscar the Grouch), just as they perform their Muppet roles. Recording sessions held to tape the Automated Muppet programs were produced and directed by Christopher Cert, a consultant to Children's Television Workshop. Helping children to interact and become familiar with computer technology in a fun and family-oriented environment makes Sesame Place an exciting and popular attraction to young and old alike.

Sesame Place, Langhorne, PA.

*The Crystal Climb allows children and parents to experience being inside a molecule, while they play in the clear, multi-level, three-dimensional structure.*



Sesame Place, Langhorne, PA.

*A youngster is tossed into a giant "pool" of 80,000 lightweight plastic balls on a waterbed surface in the Count's Ballroom.*

*Sandra G. Hanna is Marketing Manager and Director of Educational Programs at Sesame Place in Langhorne, PA.*

# Plant Management System

*by Carl R. Hahn*

There is virtually no area of our lives which does not directly or indirectly involve computers. Banking transactions, travel reservations, theatre tickets, supermarket checkout, Pac Man, and now Ms. Pac Man, are all computer-based operations which have changed the way America works and plays.

The park and recreation profession today finds itself in the midst of a rapidly changing technological society which increasingly finds computers involved in areas where they were not previously employed, and in some cases their use was not deemed possible or even useful.

Parks and recreation, along with horticulture, forestry and allied disciplines have long been perceived as "laid-back" professions involving a close and direct association with people and nature; seemingly not the sort of working environment compatible with machines capable of performing thousands of computations per second. Yet, a closer look at these professions reveals that they have many elements in common with enterprises which have employed computer technology for years.

When one looks at the diversity of elements and disciplines which are lumped together under parks and recreation it can be seen that scheduling athletic field use or park reservations, for example, is essentially the same type of process as reserving a hotel room or a seat on an airplane.

Maintaining an inventory of a group of trees and shrubs in a park system is not materially different, in terms of a process, than keeping any other inventory whether it is parts in an auto shop or canned goods in a supermarket.

## Plant Management System

The Maryland-National Capital Park and Planning Commission's (M-NCPPC) involvement in developing our computerized plant management system (PMS) began with an analysis of what activities our Division of Horticulture and Forestry performed which might be more easily or efficiently handled with the aid of a computer. Concern in this area was sparked by a need to become more efficient in a time of reduced operating budgets concurrent with an expanding park system. In an era of tight budgets, employee efficiency and productivity and agency accountability must undergo detailed examination for the sake of survival. We decided to look into the potential uses of computers as this technology had a proven record in industry and other park and recreation agencies.

We operate a complex and large park system under The Maryland-National Capital Park and Planning Commission. The Montgomery County Parks Department of the M-NCPPC has some 500 employees, 400 parks and 25,000 acres of parkland. The Horticulture and Forestry Division has 75 full-time employees involved in three major activity areas: (1) the management and maintenance of two botanical gardens; (2) landscape maintenance and development for all Montgomery County Parks; and (3) management of an 85-acre tree and shrub nursery which contains 14,000 plants.

In analyzing these three major functions we determined that there were a number of activities such as tree nursery inventories, tree planting and watering schedules, record management of the botanical gardens and coordination between landscape architects and the horticultural staff in the development and renovation of parks which we felt had the potential for improved management through automation.

## Preliminary Meetings

In 1979 we began a series of meetings with the managers of our botanical gardens, tree nursery and landscaping groups with the aim of brainstorming what ways a computer could make their jobs easier, provide for better accountability, and allow their units to function more effectively. We were also interested in learning if the managers lacked needed information or did not have the time to get necessary data through manual methods.

It should be noted that the managers of the botanical gardens, landscaping and tree nursery units all had strong horticultural backgrounds, but no previous knowledge of data processing or computers. One or two had never seen a computer terminal. At the brainstorming sessions we wanted to give the managers free reign, allowing imaginations to run wild, without considerations of cost or even if computer was capable of doing what they wanted. It was felt that this initial approach, without predetermined restrictions, would provide a free flow of ideas and not stifle individual initiative.

Our horticultural staff then met with representatives of our data processing group to determine if the ideas developed by the horticultural staff were capable of being handled by a computer.

We have had a data processing

staff and our own Hewlett-Packard 3000 mini-computer for several years. Up to this point, however, the computer had only been used for financial and accounting purposes. The development of a horticultural program was a new experience for our data processing staff.

Early on, we found that our computer and data center people and our horticultural people did not speak the same language. While the horticultural staff was talking about genus, species, variety, forma and cultivar the data processing people were casting about terms such as "hipos," "strings," "bits," and "bytes."

This phase of the development was facilitated by having first thoroughly documented which functions we wanted the computer to perform and by backing up our commitment to the project with sufficient funding.

With a good deal of patience and willingness on both sides to cooperate, an educational process ensued in which the horticulturists learned something of computer terminology and function, and the data processing staff came to understand botanical nomenclature and horticultural terminology. As it turned out this was a vital ingredient in the process as it eliminated a number of real or potential problems at an early stage of development of the plant management system.

A thorough understanding between the users and those who write the computer program at every step in the development process is essential to ensure that the final product works. This was the most tedious and time-consuming element in the development of PMS, but the effort paid off.

### PMS Specifications

From the horticultural perspective in developing PMS, we wanted a system that was user-friendly; that is, a computer program that could be used easily on a daily basis by individuals who did not have a computer-oriented background. We required a system which, to the maximum extent possible, would not allow the input of erroneous data; primarily scientific plant names. In a like manner, we felt that our system should be completely interactive, allowing us to retrieve or combine any number of data elements to produce reports which would aid our managers.

Upon reaching agreement between our horticultural staff and data processing group about the specifications for the system, we surveyed other horticultural, botanical and park institutions to determine if anyone had a system capable of meeting our requirements. A thorough study of existing software packages revealed that there was no single system capable of meeting our needs since we required a system capable of handling a plant inventory for parks, botanical gardens and tree nursery.

The specifications for the software were prepared by our data center staff and requests for proposals were sent to several computer software firms. The contract for development of PMS was awarded to Data Base Managemant, Inc. (DBMI), Arlington, Virginia. Throughout the six-month course of the development of PMS, our horticultural and data center staff met with the DBMI approximately every two weeks during the development of the software. This process was very useful in identifying and addressing problems and

Robert Rinker, M-NCPPC

*Philip Normandy, Curator of the botanical gardens collections updates plant records via a computer terminal.*

answers developed by both parties. Because of this close association between the users and contractor, the project proceeded smoothly and in the final testing phase very few problems surfaced.

It bears mentioning that PMS is a very complex program which is easy to use. The written documentation for the PMS program is contained in a document two feet thick; thus it was in our interest to ensure that errors and problems were kept to a minimum.

PMS is essentially a master plant inventory, divided into three subinventories: botanical, nursery and park, corresponding to the three major functions of the Horticulture Division. Security features built into the system allow, for example, the nursery manager to access only the nursery inventory, while the botanical gardens curator can only use the botanical inventory. Overall control of the system rests with the PMS Manager, the Chief of the Horticulture and Forestry Division.

### Botanical Inventory

The M-NCPPC operates two public botanical gardens: Brookside Gardens and McCrillis Gardens. Prior to the development of PMS, plant records were

Robert Rinker, M-NCPPC

*Visitors to Brookside Gardens admire an upright form of English Oak.*

kept manually on file cards, a laborious and time-consuming process. The plant collections at the two botanical gardens comprise some 8,000 different types of plants, in some cases these are duplicated several times.

With the PMS system we essentially substituted paper file cards for electronic file cards, and at the same time expanded the types of information collected. The botanical inventory allows four basic operations which permit the botanical curator to add, move, update information or record the death of a plant.

Features of the botanical inventory:

- PMS allows the addition of up to 100 plants of the same type from the same source in one operation, requiring a few seconds. Done manually (that is, one record card for each plant) the process could take several hours.
- If a plant is entered into PMS which has not been entered previously, the system informs the user of this fact as a spelling check.
- If a plant or group of plants is moved from one location to another, the new location can be recorded instantly.
- PMS is compatible with the Statistical Package of the Social Sciences (SPSS) allowing statistical computations to be made with ease.
- PMS can generate numerous reports which can list any combination of data elements such as lists of plants by location, family, nativity, source, accession number, etc.

**Nursery Inventory**

The nursery inventory is somewhat more complex than the botanical inventory. Briefly, the highlights of the nursery inventory features are:

- The system records the name, size, quantity and location of every tree in the nursery.
- The system allows our designers and landscape architects to reserve plants for new parks or landscape renovations from the nursery by entering the plant's name and desired size parameters. In the event plants are not available in the given species or size, the computer automatically produces a list of plants to be purchased from commercial sources.
- The computer prints labels which can be attached to trees giving instructions on where trees are to be planted.
- PMS produces a tree availability list, essentially a nursery catalogue of plants.
- Reports are available which will produce nursery tree data in any desired format such as by plant size, family, genus, source, cost/value, etc.
- PMS keeps track of all trees for two years after they have left the nursery, and prepares lists of recently-planted trees by location as a reminder to tree-watering crews. In a like manner it generates a report indicating which trees need to have stakes and wires removed.
- The PMS nursery inventory is compatible with SPSS.
- PMS retains in its memory the last three plants to occupy a given space in the nursery. This allows the tracking of tree performance by nursery location or source.

**Park Inventory**

The third and least complex of the subinventories, the park inventory, monitors trees and shrubs in each of the 400 parks in the system. The various parks in the system range in size from a few hundred square feet to more than 3000 acres. The PMS system is used to maintain an inventory of trees and shrubs planted in any given park or to record data on the historic, large or especially noteworthy trees.

- The PMS park inventory is used to record the movement of plants from nursery to park, from the botanical

collections to a park or from park to park. The movement of plants from one location to another can be recorded by simply changing one park identification to another.

- The PMS park inventory is essentially a record-keeping system for various plants in parks. Typical information kept on such plants includes the scientific name, location within a park, source, date planted, special notes, comments, etc. This portion of the program, as with the other subinventories, allows four options: to add a plant to a park, to move a plant, to update information and to record a death.
- The park inventory can generate reports such as the listing of all plants of a particular species which can be used by landscaping personnel as a guide for spraying or pruning work.
- Reports can be generated for use by the public giving the name, size and location of rare and interesting plants in the parks. This, in effect, allows an interpretive use of the parks as an extended botanical garden.
- The park inventory is compatible with SPSS.

PMS has been in use for two years with excellent results. While the conversion from a manual to an automated system required a certain amount of staff time devoted to training personnel in the use of PMS, these costs have been minimal as proficiency in the use of PMS can be gained after a few hours of instruction.

Staff resistance to change was a minor factor in part, we feel, because users were thoroughly involved throughout the development of the program. Initially some staff members were reluctant to give up their paper records - perhaps these records served as a type of security blanket - but when it was demonstrated that all of the information previously kept on file cards, scraps of paper and other obscure repositories could be transferred to the computer, all reluctance vanished.

PMS has radically altered the way our horticultural division conducts its business. As we are now in our second year we have had ample time to evaluate the program. We find that we are doing our work differently and also doing it better.

**PMS Benefits**

Among the benefits of PMS are:

- Substantial reduction in labor required to keep and update records.
- The system works for us rather than the other way around.
- Field operations such as planting, watering and removal of plant support stakes are more efficient than ever before.
- The program produces a large variety of reports which allows managers to make better and more rapid decisions about the management of plants and parks.
- The majority of time and labor expended on developing bids for the purchase of plant materials has been eliminated.

In the time PMS has been operational we have noted and are exploring possibilities for enhancements and spin-offs. To date we have created a plant propagation record system which ties into PMS, and other system enhancements are expected within a year or so.

We feel that PMS represents the state-of-the-art in plant management systems and our agency is willing to share our experiences with any interested party. For more information about PMS please write to Stanton G. Ernst, Director of Parks, M-NCPPC, 8787 Georgia Avenue, Silver Spring, MD 20907.

*Carl R. Hahn is Chief of the Horticulture and Forestry Division of The Maryland-National Capital Park and Planning Commission.*

*The position and current size of each of the 14,000 trees in the Montgomery County Park Department's tree nursery is recorded in PMS.*

*Robert Rinker, M-NCPPC*

# An Approach to In-House Computer Training

*by Deborah Arfman White*

Park and recreation agencies across the country and around the world are moving into the world of automation with the use of computers for better management and communication of information. One area that agencies should be concerned with is that of training personnel to use the computer. In most cases, leisure services personnel do not possess formal computer training and may be intimidated by computer jargon and/or the computer's capabilities.

An alternative to having your staff enrolled in a computer course that seldom applies to an agency's individual situation is the use of in-house training. This is the approach we have utilized in the Montgomery County Department of Parks of The Maryland-National Capital Park and Planning Commission (M-NCPPC) because demand for computer services is very high. This article has as it's principal focus the establishment, operation and evaluation of an in-house park and recreation training program. References to resource materials and case study examples have been used throughout the article in order to accentuate the program components.

*Charles W. McGovern, M-NCPPC*

*Training resources are integral to a successful training program.*

## Establishing the Program

The first step in establishing the training program is to select the proper individual who will have ultimate responsibility for it's success or failure. Customarily, an individual from the city or county data center, or someone with data processing responsibilities conducts the training. We chose not to follow this route. Instead, a staff person from the Parks Department was selected to train the Parks personnel. The selection of this individual was an involved process as this person had to possess not only data processing skills, but also exhibit an understanding of the role played by the Parks Department. Sensitivity to, and acceptance of, a staff with little or no computer background was another important factor.

Finally, the Department made a commitment to this training program by providing the selectee with the necessary time and resources to develop and conduct such a program. We believe that the ultimate success or failure of any new program, especially this one, is highly dependent upon the Montgomery County Parks Department's commitment of it's time and resources. As a result, great strides were made to tailor the heart of our training program to the actual needs of our managers and employees.

After the determination is made as to who will conduct the training program, it is important that a framework be established which delineates the boundaries of the program. Listed below are a number of the goals and objectives we feel constitute the basis for our training effort.

## Training Goals and Objectives

1. Provide continuous staff training in the concepts and use of automated systems.
   - Coordinate an annual Department-wide seminar with staff and guest speakers.
   - Coordinate, plan and implement small monthly group workshops focusing on applications benefiting those participants.
   - Create a resource library for professional staff development.
   - Organize and conduct on-going individual training sessions.

- Organize and develop video illustrations as a training resource.
- Provide avenues and/or assistance for staff to receive advanced training in-house or through outside resources.

2. Provide competency-based levels of achievement for employee performance measurement.
   - Define achievement levels for managers as well as non-managers and secretarial/clerical staff.
   - Develop labs and reviews to provide methods for achieving higher levels of performance.
   - Research and recommend possibilities for advancement opportunities or special commendation based on achievement levels.
   - Develop a mechanism to monitor computer competency.
3. Provide a continual communication link with staff of new developments and/or changes.
   - Provide continual assistance by being available to staff for questions.
   - Develop a quarterly newsletter to aid in the departmental communication effort.
   - Serve as a reference focal point in providing an assortment of training manuals and other learning resources.
4. Provide an on-going evaluation process of the training program.
   - Develop standards to evaluate the program.
   - Organize and evaluate the training program on a yearly basis.
   - Provide the mechanisms for staff to have input into the evaluation process.

## Making the Program Operational

The second phase of the training effort is program design. Prior to implementation of the program design, training requests were handled without formal guidelines. It became obvious that staff training levels were often indefinable, leading to inconsistent benefits. It seemed apparent that an organized program defining user categories as well as competency levels was necessary. Below is the breakdown of the categories and competency levels used in our Department.

## User Categories

**Managerial** — This category is designed for managers who want to focus on what the computer system can do for them. Managers should have hands-on experience with relevant applications that assist in more effective management.

**Secretarial/Non-Managerial** — This category involves secretarial and non-managerial staff. Attention is given to the role computers play in various operations focusing on word processing capabilities.

**Special Applications** — Training in the special applications category provides staff with the ability to operate divisional application software. Horticulture supervisors, for example, require the ability to process automated nursery inventories while park planners need the ability to track land parcels.

**Sophisticated User** — This category provides training for software such as graphics, SPSS (Statistical Package for the Social Sciences) and Data Base Development. These packages allow users to produce graphics and do data analysis or program development without programming assistance.

## Competency Levels

### I. Introduction to Computers

The introduction is designed to provide an overview of computers and their usage. Topic categories include:

- Terminology
- Available resources
- Hands-on experience
- The various terminals and their use
- Communication with computer systems

### II. Word Processing

This level focuses primarily on teaching participants the fundamental concepts of word processing and their value in the office setting. Topics included:

- Creating files
- Updating files
- Saving files
- Error recovery
- Terminal use

### III. Areas of Specialization

Once a user has progressed through the first two levels, training becomes more special-

Charles W. McGovern, M-NCPPC

*Small group workshops offer training that focuses on relevant applications for the participants.*

ized in nature. Level III may be defined in one of four ways:

1. Intermediate/advanced word processing provides staff with a solid background in word processing concepts so that they are proficient in its use. Topics include sorting capabilities, special formatting options and automatic mailings.
2. Managers who choose not to receive instruction in word processing as well as for those who have, can now proceed to review information available to them through special packages and divisional applications (i.e., time-labor tracking, graphics, budgeting, utility monitoring).
3. The sophisticated user receives training for various special-use packages mentioned in the category definition.
4. Special applications training is directed to new software systems uniquely designed for divisional operations. Examples include a Capital Improvements Program, a Land Parcel Tracking System or a Plant Management System.

**IV. Special Departmental Seminars**

Departmental seminars focus on new products and state-of-the-art technology utilizing guest speakers and demonstrations. The manner in which the program design is implemented is instrumental in its success. The following concerns play a contributing role in the training effort of the Montgomery County Parks Department.

- Implement program gradually. Computers, with their associated jargon, still may bear a mystique which can frighten some people. A graduated installation will likely take stronger hold than if it is suddenly forced upon staff.
- Limited use of technical terminology can help smooth communication channels.
- Users often have unrealistic expectations that influence their attitudes toward computers. Attempting to define these attitudes and expectations and incorporating them into individual training sessions will aid in a user's understanding and acceptance. Users need to realize that computers are merely a vehicle for processing information.
- Allow for creativity. Problem-solving techniques help instill the ability for staff to be creative in using the computer as a tool for better record keeping and/or management of information.
- Provide a means for employee recognition for accomplishments. This could possibly be through verbal communication, through additional responsibilities such as training fellow staff, or even possible monetary bonuses or promotional opportunities. Recognition can often support a program in that an employee will feel more satisfied and work toward the program goals.

## Training Resources

Training materials and the training environment are central to any training program. By providing access to as many resources as possible, employees can supplement or enhance their current level of competency. Encouragement of their use during the actual training sessions will aid staff in becoming familiar with the contents. So what should the resource library contain?

**Books** — Many books today address the subject of computers on a variety of topics ranging from computer games to programming languages.

**Manuals and Pamphlets** — These cover specific operations relating to the agency's computer. They may be distributed by the computer manufacturers or software development firms. Development of in-house resources can help ease user frustrations resulting from the inability to comprehend commercially developed manuals or guides.

**Self-Guided Tours** — These

booklets are excellent for the beginning user who isn't interested in starting with formal training but wants to get "a finger in the pie" so to speak. These may either be in booklet form or possibly through audio-visual methods.

**Other Resources** — A catalogue of available seminars, workshops, and conferences offered by universities, other public agencies, professional organizations or the private sector. Current seminars, etc. are announced in the newsletter.

In addition to the resource library, attention must be given to the training environment. The approach taken by the Montgomery County Parks Department is the use of a conference room as a training center which is proving to be very beneficial in eliminating distractions and interruptions. This center is used mostly for group seminars and workshops. A porcelain board serves jointly for illustrations and as a screen for audio-visual displays. A large conference table provides working space and an area for placement of terminals.

In the future, T.V. monitoring equipment for use in the training center will allow participants to view examples and demonstrations as they are discussed. Individual training sessions are conducted in an office area containing a small porcelain board, a terminal and a printer.

Although this arrangement is available in most divisions, bringing the participant to an area especially designed for training eliminates interruptions. Even though training materials and the training environment may seem secondary to the training program, they are the most significant. These factors can mean the difference between contented users and ones who are frustrated.

## Evaluating the Training Program

In order to avoid a static training program, evaluations should be conducted on the overall program and on the various performance levels. The evaluation should be approached as a joint effort with both the trainer and trainee involved. Feedback from participants can be very healthy for programs, especially in the early stages. If employees see their recommendations put into action, it may give them an incentive to become more involved and adds additional credibility to the program. When performing an evaluation, however, certain areas of concern should be examined.

1. **Environment** — Are the facilities adequate and effective? As discussed above, training areas should be distraction-free, comfortable, and have an effective arrangement for visual aids and terminal hook-up.
2. **User's Expectations** — Are they defined and was an attempt made to incorporate them into the program? Did the user know from the beginning what to expect? The more the user understands, the less unrealistic the user's expectations will be.
3. **Trainer Evaluation** — The trainer should evaluate his/her performance on certain established characteristics. Staff should be provided the opportunity to evaluate the effectiveness and abilities of the trainer.
4. **Resources Evaluation** — Are the current resources adequate? Should additional in-house materials be developed? What type of resources have staff requested? There should be a constant review of literature for new available resources.
5. **Program Design and Content** — Are the desired results being achieved? Are employees performing as expected? Are the levels of performance defined adequately and do the categories include all employees?

Because every training program is different, the evaluation process must take place. This process helps provide a method for defining problems occurring in the program. As a rule, the most difficult problem in training is the differing levels of understanding that occur during the training process. For this reason a competency-based program is crucial as it aids in defining a participant's progress and current level of knowledge.

Another major problem encountered is the varying degree of expectations and the effect it has on the user's attitudes. The differing levels of understanding and varying expectations have a major impact on the program design and the training effort. A constant evaluation can bring to light problems occurring in the program, and solutions can then be incorporated into the training program.

## Conclusion

How vital is a training program? Montgomery County Parks found it to be of significant value. We have trained approximately 60 secretaries, supervisors, managers and other park staff in the operation of the Department's computer. Our tailored program has aided in turning unrealistic expectations into realistic results. It has turned skepticism into acceptance and apprehension into confidence.

In a desire to become computer-literate, many staff members have requested training. They see others ulitizing the system with excitement and this has become contagious. These reversals and new attitudes have helped play an important role in the overall acceptance of the Department's Management Information System.

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# The Paperless Office

*by Karen H. Michaels*

## The Information Age

Throughout the past decade, the "office of the future," "the electronic office," "the paperless office," have existed as abstract concepts for most organizations. However, today's offices are faced with serious information processing problems requiring immediate attention. We have become very proficient at creating information, both manually and through data and word processing, but have fallen behind in our ability to manage and control that information successfully. And no wonder — we create millions of documents every day!

Mankind has grown through the ages from an agriculturally-based society to one steeped in the effects of the Industrial Revolution. Each era has brought with it phenomenal economic, social and psychological changes — the "third wave." The Information Era will bring even greater changes which will affect us rapidly. By 1900 the delineation between the "haves" and the "have-nots" might well be between the "Information Rich" and the "Information Poor."

No matter what business an organization is in, it is also in the information business. In every industry, people communicate — they talk to one another, fill out forms, synthesize data, etc. The office has expanded to include wherever work is performed — the traditional office, school, home, car, truck, plane, etc. Communications is the key to every office operation.

Information has become an economic commodity in and of itself. In fact, 50% of the Gross National Product is information products or related services.

Micronet/Kappa Systems, Inc.

However, according to Department of Labor statistics, white-collar worker productivity (4%) has lagged far behind that of blue-collar workers (84%). What do these figures mean? Considering the fact that the number of white collar workers is outgrowing production (factory or farm) workers almost 5 to 1, our economy could face serious problems unless we can make this labor and capital-intensive segment of society more productive.

But where do we begin in this endeavor? Looking behind the scenes to determine why blue collar workers have been so productive, we discover that approximately $35,000 per worker per year is invested in tools required to do his or her work; whereas only $3,000 per worker per year is invested for the "tools" that office workers need. Currently, most office workers only have writing implements, a desk and chair, a filing cabinet, and a telephone — the tools of 50 years ago.

## Management Challenges and Technological Change

Within the past 5 years enormous changes have begun to take place, not only in the office but in our lives in general. How many people do not own a pocket calculator or have not heard of word or data processing? Whether we are aware of it or not, our lives are surrounded by computerized parts — in supermarkets, electronic arcades and home games, digital watches, microwave ovens, gas pumps, etc.

Although the primary topic of this article concerns technological change in the office, an overriding influence evolves from the basic understanding that routine and tedious tasks are slowly, but very surely, being automated.

The major challenge facing organizations in the 1980's is information management — determining what kind of information is important to whom, and knowing how to route it in the most cost-effective and timely manner.

Information is only as valuable as it is accessible — and is most valuable if handled properly.

There is no one "supertool" but there are varied technologically advanced tools which can help us access and use information more efficiently. The challenge here is in understanding what needs to be known by whom, and determining which technology is most appropriate for the specific *applications* required. The "catch" is that to be successful, information processing systems must be *integrated.*

These two buzz words, *applications* and *integration,* form the backbone of the successful office of the future. Each component in the office should function as a subsystem of the larger system's architecture. The end result of successful information management is not only well-designed and integrated hardware and software, but also good procedures, facilities, training, office organization, and attention to human and psychological factors.

## The Paperless Office

These are some of the premises that promoted the development of Micronet, Inc.'s Paperless Office demonstration and training facility at the Watergate in Washington, D.C. Micronet gained world acclaim as the first fully automated, integrated office (1979) by designing, developing, and implementing the system architecture, communication protocols, procedures, and interfacing software used for its daily business operations.

Technologies included in the information processing flow include dictation; data and word processing; electronic mail; source document, updatable, and computer output microforms; computer assisted retrieval; large scale automated micrographic document storage and retrieval; computer color graphics; optical character recognition; and multifunction microcomputer-based executive workstations. Working daily in its automated office, Micronet/Kappa Systems, Inc. (management consulting firm) has the unique ability to practice what it preaches in terms of managing information and technology in the 80's.

## An Integrated Records Management System

The Paperless Office information processing network begins by defining two basic issues: 1) the source of document creation (internal or external) and 2) the anticipated activity (long-or short-term retention; high or low distribution priority; etc.). The flowchart (Figure 1) generically illustrates information processing at the Paperless Office, and is representative of integrated possibilities within any office.

A major portion of the information contained in Micronet/KSI's records management system is externally created. These documents are varied in format, typefont, color, size, etc., and consequently are fairly inflexible, i.e., we cannot cost-effectively convert them to digital form for manipulation or distribution, etc.

Since most externally prepared material arrives in paper form, Micronet/KSI's procedural handling includes internal routing in paper form, and subsequent batching and coding for source document or "updatable" microfilming and long-term storage.

A.B. Dick's System 200 allows us to use a fiche (film about the size of an index card) as a substitute for a manila folder. We can add images anywhere on the fiche master (up to 98 pages/fiche), and have opportunities to override obsolete data, duplicate fiche, and to bring images back to paper if necessary. Source document filming is sent to AmeriCOM (a local service bureau) for filming and indexing.

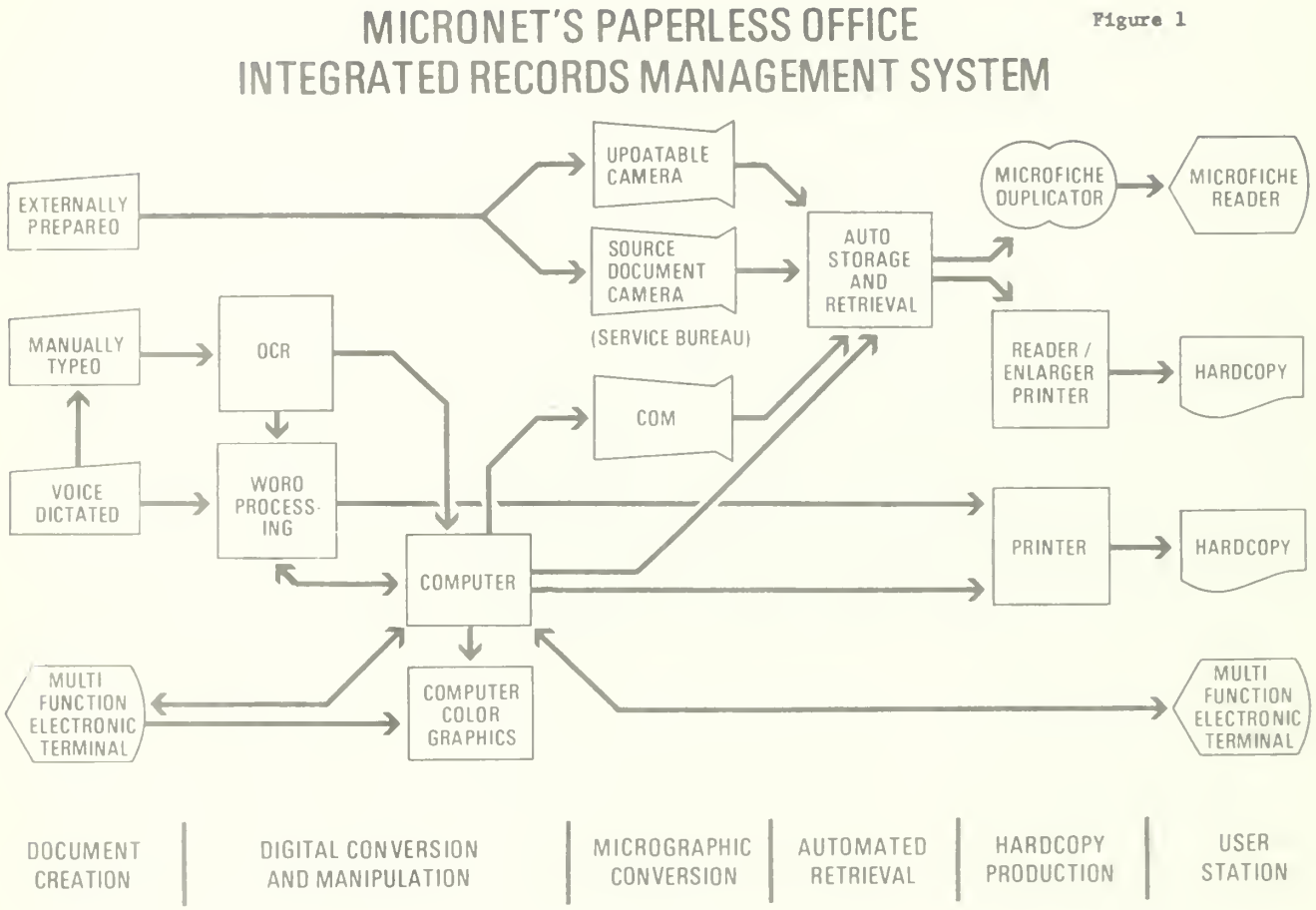
Some information, however, arrives through our telephone-based dictation system or in digital form through electronically mailed documents or through our electronic mail system. This information can then be treated more like internally prepared materials — in other words, we have options to convert the data from one medium to another; to edit, answer or forward information; or to throw it away if we have no further use for it!

Internally created information can enter the "system" in varied forms including paper, and digital and analog signals. Dictation is one of the oldest, most familiar, cost-effective, and underutilized technologies in the office today. Dictaphone's Thought Tank Master, a telephone-based (4 dial-up lines) system, provides our staff with one of the quickest and most accessible ways to communicate — 24 hours a day, regardless of where we are.

As with all systems, there are benefits and drawbacks — an hour of dictation is comparable to two hours of transcription. However, unless standard procedures are used and attention is paid to grammar, increased requirements for editing should be expected.

The most economical input device for transcription is the electric typewriter used in con-

Figure 1

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junction with an optical character recognition system (OCR). Internal studies have revealed that 70% of all keystrokes are first draft typing, while only 30% are edited and revised. This means that for many organizations, the total reliance on more expensive word processors (equipment and personnel) can be lessened.

The Paperless Office uses two Dest Corporation OCR's, one with multiple communications capability designed for centralized operations and a table-top unit, designed for decentralized or word processor-dedicated operations. This allows the NBI 3000 word processor to perform the functions it was designed for — text manipulation, active storage, and letter quality output. In The Paperless Office the OCR is hard-wired to the word processor, but could transit to the computer, photocomposer, or other telecommunications channel.

Once in digital form, information can be much more readily manipulated, disseminated, accessed, etc., but the document storage costs are the key to deciding particular media applications. We have found that on the average, the following media costs are connected with storing a half million characters of text created at the word processor.

| | | |
|---|---|---|
| WP floppy disk | = | $30.00/month |
| Computer disk | = | 9.20 |
| Magnetic tape | = | 5.80 |
| Paper | = | 2.10 |
| Microfilm (fiche) | = | .75 |

Certainly storage costs for records which need to be retained for any length of time will be substantially less if documents are off-loaded to the most cost-effective medium. Documents in microform can be stored in a centralized, automated or computer-assisted retrieval system (we use an Access System M-1) which allows any authorized user to ac-

cess documents in seconds. Another advantage is that many users may use the same "file" simultaneously at very low reproduction costs. To copy a fiche with 270 images (48x) costs about a $0.05 — the same cost as copying just one piece of paper!

## Computer Output Microfilm

For information no longer active enough to reside on the computer, (i.e., electronic mail), we have procedures for converting to microforms using a DatagraphiX AutoCOM recorder (with software supported by AmeriCOM). This device (Computer Output Microfilm) allows us to reformat information from a magnetic tape (which we have generated directly from OCR, WP, and the computer) to alpha-numerics while placing that image on a microform.

COM is output in an OCR readable typefont, so if any documents need to be reactivated we can convert the image back to paper and scan the document through OCR. COM allows for archival storage of information, automated retrieval of information and cost-effective duplication, storage and dissemination.

In many cases, alphanumeric representation is not as effective as graphic displays, so our Iconix Autograf color graphics system is often employed to better format statistical data into easily understood charts and graphs as well as for developing interactive, self-training programs. Data can be extracted from our multi-function executive work stations (Axxa System 90's) or from our DEC mini computer, formatted as charts and graphs, and output to paper, transparencies or color slides with electronic ease.

For such applications as list processing, a shared-logic word processing/data base management program, Microsystem's Engineering Corporation's, MASS-11, provides a "user friendly" capability.

Users are provided with Realist desk-top and portable fiche readers, as well as the Axxa executive work stations which allow all personnel to input data electronically; track projects, documents and calendars; write BASIC programs; link to electronic mail (we use Computer Corporation of America's COMET software); as well as to perform other management functions from their desks.

Although organizations cannot cost-justify automation based on electronic mail alone, it is the ideal medium for distributing brief messages and memos, etc., and supplies valuable productivity benefits such as reductions in the generation, copying, and filing of paper; increased speed of delivery among remote offices; key word filing; reductions in the number of frustrating telephone interruptions and "telephone tag" activities; and archival filing opportunities through COM.

Staff in The Paperless Office work at Westinghouse Architectural Systems Division Open Office Systems Work Stations. This modularly styled furniture accommodates cabling requirements, paper file storage, ergonomically-designed chairs, desks and lighting, and enables office reconfigurations necessitated by systems or organizational changes.

## Goals for the Office of the Future

Micronet/KSI's primary goal in integrated records management system design is to efficiently and effectively serve its internal operations and its clients with the most appropriate technologies and in the most cost-beneficial way possible. By the end of this decade, the "paperless office" will exist for many organizations. In closing, a few "words to the wise":

a. As information increases in value, management of this resource must also be strengthened;
b. Information management tools must ultimately be directed at improving executive productivity, i.e., decision-making;
c. Successful office automation programs must be well organized, and reflect a "macro-level" perspective of corporate communications; and,
d. Integrated office systems will succeed only if top management is committed, employees participate, objectives and strategies are outlined from the beginning, and everyone in the organization understands their changing roles.

In the office of the future, many routine and tedious tasks will be eliminated, which will hopefully provide more time for creativity and organized information access.

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# A Computerized Maintenance Analysis and Control Procedure

*by Chrystos D. Siderelis*

Park operations and maintenance costs continue to rise faster than appropriations, which means reductions in levels of maintenance. Thus, park managers have begun to redevise traditional funding allocation schemes for maintenance. Managers are placing a greater emphasis on establishing work performance standards and analyzing operating and maintenance costs through Workload/Cost Tracking (See Siderelis, 1978 in Who Can You Turn To?).

However, park managers have encountered a difficult problem in using Workload/Cost Tracking. There appear to be no established techniques for analyzing maintenance workload data. This problem was investigated by Siderelis, Lawrence (U.S. Army Corps of Engineers, Waterways Experiment Station), and Martin for managers of Corps of Engineers Resource Areas, and reported by Martin (1981). The primary purpose of the study was to examine various work performance indicators that could be combined into a managemant informational report which, when applied by managers, would provide for a quantitative assessment of maintenance operations.

### Design of An Analysis and Control Procedure

Surveyed results from park managers produced the following useful suggestions for designing a maintenance analysis and control procedure:

1. Provide computer products from the analysis of workload data that could be understood and easily utilized in managing park operations.

2. Devise a computer program that would perform the necessary computations given the limited frequency with which most maintenance tasks are performed by workers.

3. Provide a computer printout containing: (a) an entry listing of work activities, date completed, work site, work description, and percent of work completed (see Exhibit I); (b) work measurement and analysis statistics that can be readily interpreted by the manager in evaluating maintenance tasks; (c) graphical display of work performance over time for the purpose of observing trends and percent changes in manpower efforts between task observations.

The control chart concept used in industrial engineering applications was reviewed as a possible design solution. Briefly, this chart provides a graphic display of the relationship between task completion dates and man-hours to indicate the possible presence of unusual or abnormal conditions. In addition, three other benefits can be gained from using a control chart:

1. Managers can readily detect variability in worker efforts over time from the chart. In most reported industrial applications on use of control charts, the primary measure of the quality characteristic (item plotted on the graph) was the number of man-hours necessary to complete the maintenance task. In the case of park maintenance, park managers or foremen can evaluate this characteristic in

EXHIBIT I

-->1. JOB ENTRY TABLE

| ->MMDD: | HOURS: | WORK SITE | WORK DESCRIPTION | : % :YY<- |
|---|---|---|---|---|
| -> 604: | 12: | CITY PARK | MOWING AND TRIM | :100:82<- |
| -> 612: | 3: | CITY PARK | MOWING AND TRIM | :100:82<- |
| -> 620: | 10: | CITY PARK | MOWING AND TRIM | :100:82<- |
| -> 630: | 5: | CITY PARK | MOWING AND TRIM | :100:82<- |
| -> 713: | 20: | CITY PARK | MOWING AND TRIM | :100:82<- |
| -> 722: | 4: | CITY PARK | MOWING AND TRIM | :100:82<- |

MM(MONTH) DD(DAY) YY(YEAR)

EXHIBIT II

-->2. WORK MEASUREMENT AND ANALYSIS

-->SEE DOCUMENT, 'JOB GRAPHING AND TRENDS' BY CHRYSTOS SIDERELIS TO INTERPRET THE TREND FOR THE 6 DAYS PLOTTED ON THE GRAPH.

1 -->TOTAL MAN-HOURS WAS 54 FOR PERIOD BEGINNING 820604 AND ENDING 820722.
(YYMMDD) (YYMMDD)

-->FOREMAN, PLEASE READ:

3 F-FIRST QUARTILE (25%) = 3.5 MAN-HOURS WHICH IS THE INNER CONTROL LIMIT.
2 S-SECOND QUARTILE (50%) = 7.5 MAN-HOURS WHICH IS THE AVERAGE.
3 T-THIRD QUARTILE (75%) = 16 MAN-HOURS WHICH IS THE OUTER CONTROL LIMIT.

4 -->QUARTILE DEVIATION IS 6.25 MAN-HOURS WHICH IS A STATISTICAL MEASURE OF THE VARIABILITY BETWEEN MAN-HOURS AND IS OFTEN USED AS THE RANGE MEASURE.
-->THE SMALLER THE DEVIATION, THE CLOSER THE DISPERSION OF MAN-HOURS TO THE AVERAGE.

5 -->MINIMUM = 3 MAN-HOURS
5 -->MAXIMUM = 20 MAN-HOURS
5 -->RANGE = 17 MAN-HOURS

light of visitor use patterns and skill levels of workers.

2. Managers can observe the consistency of worker performance from the chart.

3. The control chart reports an average level of task completion in man-hours.

However, statistical measures that accompany the control chart are primarily used for quality control purposes in the industrial setting and therefore require the frequent collection (usually 30 observations) of data for each work activity. But most maintenance activities occur infrequently in a park, and this is not the only fundamental difference between the industrial and park setting. Thus we chose a percentage system to indicate maintenance performance in place of the control chart. Statistical measures displayed on the computer printout (Exhibit II) include:

1. The total man-hours spent during the reported work period.

2. The median, which is the mid-value (or second quartile) of the set of task work observations when arranged in numerical sequence.

3. A 25% band on either side of the median which defines the 25% (first quartile) and 75% (third quartile) control limits. That is, at least 50% of all man-hour observations will fall within these two limits.

4. The quartile deviation, which is a statistical measure of the variability in man-hours and is often used as a measure for the range in man-hour observations since it is not as sensitive to extreme values as is the range (See Who Can You Turn To? Nickerson, 1981).

5. The range which, on the other hand, is the difference between the minimum task times.

### Control Graph

The control graph can plot task times over a week, month, or longer time horizon. Printed on the graph are the 25% (first quartile) and 75% (third quartile) control limits, and the average (sec-

-->3. WORK DISPLAY AND CONTROL GRAPH EXHIBIT III

-->THE AMOUNT OF MAN-HOURS CORRESPONDING TO A GIVEN DAY(DD) ARE PLOTTED IN THE FOLLOWING MANNER: *(MAN-HOURS).
-->PERCENT CHANGES BETWEEN PLOTTED MAN-HOURS ARE RECORDED IN THE TIME ANALYSIS TABLE FOLLOWING THIS DISPLAY.

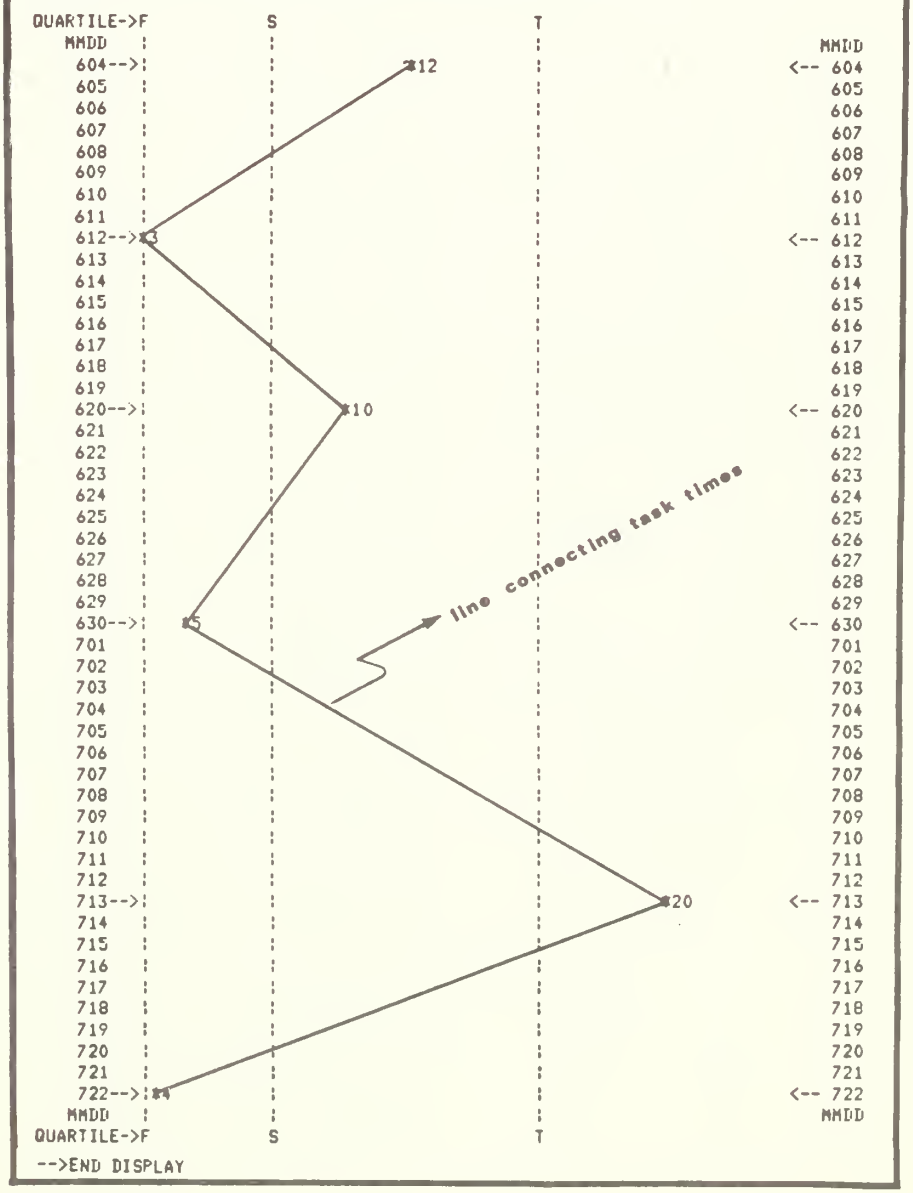

EXHIBIT IV

-->4. JOB REFERENCE AND TIME ANALYSIS TABLE

-->PLEASE NOTE: THE % CHANGE IN THE REFERENCE TABLE IS THE RELATIVE CHANGE BETWEEN PRECEEDING MAN-HOUR OBSERVATIONS.

| ->MMDDYY | HOURS | % CHANGE & CONDITON |
|---|---|---|
| -> 60482 | 12 | 0% NO CHANGE |
| -> 61282 | 3 | -75% DECREASE |
| -> 62082 | 10 | 233.3% INCREASE |
| -> 63082 | 5 | -50% DECREASE |
| -> 71382 | 20 | 300% INCREASE |
| -> 72282 | 4 | -80% DECREASE |

ond quartile). Task times that fall below the 25% limit and above the 75% limit are noted as exceptions and may require further investigation.

As the task times are connected, which has been done in Exhibit III, patterns in variations called "trends" emerge on the graph. The interpretation of trends may indicate one of four different types of effects noted by Erwin 1978 (See Who Can You Turn To ?):

1. MIXED EFFECT — when task times have little order and fluctuate toward the lower and upper control limits like the trend appearing in Exhibit III.

Problems - task times are being averaged for more than one work activity. Work activity must be standardized for reporting purposes. Actual task times fluctuate due to poor methods, lack of supervision, or insufficient training (See Erwin, 1978 in Who Can You Turn To?).

2. CYCLIC EFFECT — when task times fluctuate periodically, at predictable intervals, in a rhythmic manner.

3. TREND EFFECT — when task times increase gradually in an upward direction or decrease in a downward direction.

Problem - Upward trends indicate increases in task times and in a park setting are usually indicative of increased visitation or work delays like the occurrence or breakdowns in critical pieces of maintenance equipment. Downward trends are desirable if they reflect improvements in task efficiency. They are not desirable when work activities are being partially completed by workers.

4. MEDIAN EFFECT — when plotted task times tend to cluster around the median.

Problem - workers are reporting what they feel is expected by management.

In evaluating a trend in performance on the graph, the manager looks for variations with specific causes and attempts to assign reasons. The Reference and Time Analysis Table in Exhibit IV is used to identify dramatic percent changes in task time from one daily observation to the next. One must remember that many minor variations may occur by chance, and are difficult to eliminate from the work situation.

The quartile deviation and range statistics are important in measuring the overall amount in variation between extreme task times. In the performance of routine maintenance tasks, a small amount of variation is generally tolerated with the setting of narrow distances in man-hours above and below the median task time.

On the other hand, in the analysis of non-routine tasks (e.g., electrical, plumbing, carpentry, etc.), a great amount of tolerance is allowed in setting the control limit boundaries. Or the manager may elect to expand or contract the distance between each control limit and the median with so-called "natural tolerances," particularly where the variations between task times in relation to the median are small.

In addition to the setting of control limits, the median task time for work activity at a park can be used as the standard for worker efficiency, while the control limits bounding the median act as the low and high acceptable levels of worker quality for that maintenance activity.

Separate control graphs can be set up for each class of maintenance activity or a combination of activities. Or separate graphs for each crew may be derived for the productive comparison of work between crews.

The occurrence of individual maintenance activities at an individual park or at multiple parks can also be graphed for trend analysis or comparison purposes. If one is willing to ignore differences in park conditions such as variations in terrain, variable worker skill levels, periodic weather conditions, obstacles like variations in tree or shrub layouts, or activity room layouts for custodial maintenance (to name a few), the computer programs can be modified from their present forms to display units of task times (e.g., man-hours per square foot, acre, linear foot, mile, etc.) for comparison purposes.

## Computer Program Operation

Two computer programs, JOB ENTRY CONTROL and JOB ANALYSIS AND CONTROL, were written in Appplesoft BASIC for the Apple II Plus micro-processor with CCS firmware and the IDS 445 printer. Once the computer programs have been transferred to a diskette and entered into the computer, they can be accessed by typing in the following line entry after the bracket (]): RUN JOB ENTRY CONTROL (press return). The computer will begin to request information about each task for computer processing. Entries made in the JOB ENTRY CONTROL program are recorded in the Job Entry Table (Exhibit I). During program operation there are several minute delays between the printing of tabular and graphic information.

*C. D. Siderelis, PhD, is an associate professor of Recreation Resources and Administration at North Carolina State University.* *The author would like to acknowledge Mr. Tim Goodfellow for his advice and assistance in the writing of computer programs. A diskette of the computer programs listed in this article can be obtained from the author for $20 by writing to P.O. Box 33524, Raleigh, NC 27606.*

JOB ENTRY ROUTINE

```
10  TEXT
20 D$ =  CHR$ (4)
30 F$ = "JOB#"
40 FL = 70
50  PRINT D$;"OPEN";F$;FL;",L";FL
60  PRINT D$;"DELETE";F$;FL
70  PRINT D$;"OPEN";F$;FL;",L";FL
80  PRINT D$;"WRITE";F$;FL;",R0"
90 EOF = 1: PRINT EOF
100  PRINT D$: PRINT : HOME
110  REM  START CONVERSATION
120  HOME : VTAB 7
130  PRINT "ENTER '99' TO EXIT DATA
ENTRY OR -->"
140  PRINT ">ENTER YEAR (YY)-";
150  INPUT YY
160  IF YY = 99 THEN 620
170  IF YY < 80 OR YY > 83 THEN  CALL  -
198: GOTO 140
180  PRINT ">ENTER MONTH (MM)-";
190  INPUT MM
200  IF MM < 1 OR MM > 12 THEN  CALL  -
198: GOTO 180
210  PRINT ">ENTER DAY (DD)-";
220  INPUT DD
230  IF DD < 1 OR DD > 31 THEN  CALL  -
198: GOTO 210
240  IF MM = 1 OR MM = 3 OR MM = 5 OR MM
= 7 OR MM = 8 OR MM = 10 OR MM = 12 THEN
270
250  IF DD > 30 THEN  CALL  - 198: GOTO
210
260  IF MM = 2 AND DD > 29 THEN  CALL  -
198: GOTO 210
270 DE = MM * 100 + DD
280  PRINT ">ENTER MAN-HOURS: ";
290  INPUT V
300  IF V < .1 OR V > 999 THEN  CALL  -
198: GOTO 280
310  PRINT ">ENTER WORK ACTIVITY <40
SPACES"
320  INPUT DI$
330  IF  LEN (DI$) < 0 OR  LEN (DI$) >
40 THEN  CALL  - 198: GOTO 310
340  PRINT ">ENTER LOCATION NAME <15
SPACES"
350  INPUT LO$
360  IF  LEN (LO$) < 0 OR  LEN (LO$) >
15 THEN  CALL  - 198: GOTO 340
370  PRINT ">MUST ENTER PERCENT OF JOB
COMPLETED"
380  PRINT "   (0 - 100) : ";
390  INPUT CO$
400  IF  LEN (CO$) < 1 OR  LEN (CO$) > 3
THEN  CALL  - 198: GOTO 370
410  HOME : VTAB 5
420  PRINT "YEAR-";YY
430  PRINT "MONTH/DAY-";DE
440  PRINT "MAN-HOURS: ";V
450  PRINT "WORK DESCRIPTION-";DI$
460  PRINT "LOCATION-";LO$
470  PRINT "% COMPLETE-";CO$
480  VTAB 12: PRINT "IS THIS OK (Y/N) ";
490  GET A$: PRINT A$
500  IF A$ <  > "Y" AND A$ <  > "N" THEN
CALL  - 198: GOTO 480
510  IF A$ = "N" GOTO 120
520  PRINT
530  PRINT D$;"WRITE";F$;FL;",R";EOF
540  PRINT YY
550  PRINT DE
560  PRINT V
570  PRINT DI$
580  PRINT LO$
590  PRINT CO$
600 EOF = EOF + 1
610  PRINT D$: GOTO 120
620  PRINT D$;"WRITE";F$;FL;",R0"
630  PRINT EOF
640  PRINT D$;"CLOSE"
650  PRINT D$;"RUN TEST50 JOB"
```

WORK ANALYSIS AND CONTROL ROUTINE

```
10  TEXT
20  DIM YY(100),DE(100),V(100),DI$(100),
LO$(100),CO$(100),RL(100)
30 F$ = "JOB#70"
40 FL = 70
50 D$ =  CHR$ (4)
60  ONERR  GOTO 130
70  PRINT D$;"OPEN";F$;",L";FL
80  PRINT D$;"READ";F$;",R0
90  INPUT EOF
100  PRINT D$
110  IF EOF >  = 2 THEN 180
120  PRINT D$
130  PRINT "NO DATA IN JOB ENTRY FILE
!!!!!!"
140  POKE 216,0
150  CALL  - 198: PRINT
160  PRINT D$;"CLOSE"
170  PRINT D$;"RUN JOB ENTRY CONTROL"
180 M = EOF - 1
190  POKE 216,0
200  FOR I = 1 TO M
210  PRINT D$;"READ";F$;",R";I
220  INPUT YY(I)
230  INPUT DE(I)
240  INPUT V(I)
250  INPUT DI$(I)
260  INPUT LO$(I)
270  INPUT CO$(I)
280 DE(I) = YY(I) * 10000 + DE(I)
290  NEXT
300  PRINT D$
```

```
310 B$ =  CHR$ (124)
320  HOME : INVERSE
330  VTAB 6
340  HTAB 5
350  PRINT "JOB ANALYSIS AND CONTROL
GRAPH"
360  PRINT
370  PRINT
380  HTAB 12
390  PRINT "BY SID'S SYSTEMS"
400  PRINT : PRINT
410  NORMAL : PRINT "COMPUTER WORKING.."
420  PRINT
430  PRINT "PLEASE TURN PRINTER ON
!!!!!"
440  PRINT "-->WAIT FOR FLASHING MESSAGE
TO SIGNAL": PRINT "     PROCESSING
COMPLETED ": PRINT : FLASH : PRINT "
PLEASE WAIT": NORMAL
450  GOTO 750
460 MA = M - 1: REM  START SORT
470  FOR J = 1 TO MA
480 JA = J + 1
490  FOR K = JA TO M
500  ON FLAG GOTO 510,530
510  IF V(K) >  = V(J) GOTO 690
520  GOTO 540
530  IF DE(K) >  = DE(J) GOTO 690
540 TEMP = V(K)
550 V(K) = V(J)
560 V(J) = TEMP
570 TEMP = DE(K)
580 DE(K) = DE(J)
590 DE(J) = TEMP
600 TEMP = YY(K)
610 YY(K) = YY(J)
620 YY(J) = TEMP
630 TEMP$ = DI$(K)
640 DI$(K) = DI$(J)
650 DI$(J) = TEMP$
660 TEMP$ = LO$(K)
670 LO$(K) = LO$(J)
680 LO$(J) = TEMP$
690 TEMP$ = CO$(K)
700 CO$(K) = CO$(J)
710 CO$(J) = TEMP$
720  NEXT K
730  NEXT J
740  RETURN
750  IF M > 2 THEN 1020
760  IF M = 2 THEN 800
770 MEDIAN = V(1)
780  PRINT : PRINT "ONLY 1 JOB,
PROCESSING CANNOT CONTINUE": PRINT :
PRINT  SPC( 14)"MEDIAN = ";V(1)
790  GOTO 3020
800  PRINT : PRINT "ONLY 2 JOBS,
PROCESSING WILL CONTINUE": PRINT :MEDIAN
= (V(1) + V(M)) / 2: PRINT  SPC(
14)"MEDIAN = ";MEDIAN
810 FLAG = 1
820  GOSUB 460
830 Q1 = V(1):Q3 = V(M):SUM = V(1) +
V(M):RA = V(M) - V(1)
840 W = V(1):MXHOURS = V(M)
850 FLAG = 2
860  GOSUB 460
870  GOSUB 2800
880  PRINT  SPC( 21)"JOB ANALYSIS AND
CONTROL PROCEDURE": PRINT
890  PRINT  SPC( 25)"DESIGNED AND
WRITTEN BY": PRINT : PRINT  SPC(
27)"CHRYSTOS SIDERELIS": PRINT
900  PRINT  SPC( 28)"COPYRIGHTED 1982":
PRINT : PRINT
910  PRINT "-->1.  JOB ENTRY TABLE":
PRINT
920  PRINT "->MMDD";B$;"HOURS";B$;"WORK
SITE      ";B$;"WORK DESCRIPTION
";B$;" % ";B$;"YY<-"
930  PRINT "----------------------------
----------------------------------------
----------"
940  FOR I = 1 TO M
  950 DE$ =  STR$ (DE(I) - YY(I) *
10000):V$ =  STR$ (V(I))
960  PRINT "->"; SPC( 4 -  LEN
(DE$));DE$;B$; SPC( 5 -  LEN
(V$));V$;B$;LO$(I); SPC( 15 -  LEN
(LO$(I)));B$;DI$(I); SPC( 41 -  LEN
(DI$(I)));B$; SPC( 3 -  LEN
(CO$(I)));CO$(I);B$;YY(I);"<-"
970  NEXT
980  PRINT "----------------------------
----------------------------------------
---------"
990  PRINT "   MM(MONTH) DD(DAY)
YY(YEAR)"
1000  PRINT D$;"PR#0"
1010  GOTO 1590
1020  FOR I = 1 TO M
1030 SUM = SUM + V(I)
1040  NEXT
1050 FLAG = 2
1060  GOSUB 460
1070  GOSUB 2800
1080  PRINT  SPC( 21)"JOB ANALYSIS AND
CONTROL PROCEDURE": PRINT
1090  PRINT  SPC( 25)"DESIGNED AND
WRITTEN BY": PRINT : PRINT  SPC(
27)"CHRYSTOS SIDERELIS": PRINT
1100  PRINT  SPC( 28)"COPYRIGHTED 1982":
PRINT : PRINT
1110  PRINT "-->1.  JOB ENTRY TABLE":
PRINT
1120  PRINT "->MMDD";B$;"HOURS";B$;"WORK
SITE      ";B$;"WORK DESCRIPTION
";B$;" % ";B$;"YY<-"
```

```
1130  PRINT "----------------------------
----------------------------------------
---------"
1140  FOR I = 1 TO M
1150 DE$ =  STR$ (DE(I) - YY(I) *
10000):V$ =  STR$ (V(I))
1160  PRINT "->"; SPC( 4 -  LEN
(DE$));DE$;B$; SPC( 5 -  LEN
(V$));V$;B$;LO$(I); SPC( 15 -  LEN
(LO$(I)));B$;DI$(I); SPC( 41 -  LEN
(DI$(I)));B$; SPC( 3 -  LEN (CO$(I)));
CO$(I);B$;YY(I);"<-"
1170  NEXT
1180  PRINT "----------------------------
----------------------------------------
---------"
1190  PRINT "   MM(MONTH) DD(DAY)
YY(YEAR)"
1200  PRINT D$;"PR#0"
1210 MZ = M
1220  FOR I = 1 TO M - 1
1230  IF I = MZ THEN 1370
1240  IF DE(I) = DE(I + 1) THEN 1260
1250  GOTO 1340
1260 V(I) = V(I) + V(I + 1)
1270 Z = Z + 1
1280  FOR K = (I + 1) TO (MZ - 1)
1290 V(K) = V(K + 1)
1300 DE(K) = DE(K + 1)
1310  NEXT K
1320 MZ = MZ - 1
1330  GOTO 1360
1340  NEXT I
1350  GOTO 1370
1360  GOTO 1220
1370 M = MZ
1380 FLAG = 1
1390  GOSUB 460
1400 MXHOURS = V(M)
1410 W = V(1)
1420 RA = V(M) - W
1430 M% = (M + 1) / 2
1440 M2 = (M + 1) / 2
1450 Q1 = (M + 1) / 4
1460 Q3 = 3 * (M + 1) / 4
1470 M2 = (M + 1) / 2
1480 Q1% = (M + 1) / 4
1490 Q3% = 3 * (M + 1) / 4
1500  IF M% <  > M2 GOTO 1520
1510 MEDIAN = V(M%): GOTO 1530
1520 MEDIAN = (V(M%) + V(M% + 1)) / 2
1530  IF Q1% <  > Q1 THEN 1550
1540 Q1 = V(Q1%): GOTO 1560
1550 Q1 = (V(Q1%) + V(Q1% + 1)) / 2
1560  IF Q3% <  > Q3 THEN 1580
1570 Q3 = V(Q3%): GOTO 1590
1580 Q3 = (V(Q3%) + V(Q3% + 1)) / 2
1590  DIM JD(366),MH(366)
1600  FOR I = 1 TO 366
1610  READ JD(I)
1620  INVERSE
1630  HTAB 19: VTAB 14: PRINT I
1640  NORMAL
1650  NEXT I
1660 FLAG = 2
1670  GOSUB 460
1680 FIRST = DE(1) - (YY(1) * 10000)
1690 BEG = 1
1700 TEST = YY(1)
1710  DATA 101,102,103,104,105,106,
107,108,109,110,111,112,113,114,115,
116,117,118,119,120,121,122,
123,124,125,126,127,128,129,130,131
1720  DATA  201,202,203,204,205,206,
207,208,209,210,211,212,213,214,215,
216,217,218,219,220,221,222,
223,224,225,226,227,228,229
1730  DATA  301,302,303,304,305,306,
307,308,309,310,311,312,313,314,315,
316,317,318,319,320,321,322,
323,324,325,326,327,328,329,330,331
1740  DATA  401,402,403,404,405,406,
407,408,409,410,411,412,413,414,415,
416,417,418,419,420,421,422,
423,424,425,426,427,428,429,430
1750  DATA  501,502,503,504,505,506,
507,508,509,510,511,512,513,514,515,
516,517,518,519,520,521,522,
523,524,525,526,527,528,529,530,531
1760  DATA  601,602,603,604,605,606,
607,608,609,610,611,612,613,614,615,
616,617,618,619,620,621,622,
623,624,625,626,627,628,629,630
1770  DATA  701,702,703,704,705,706,
707,708,709,710,711,712,713,714,715,
716,717,718,719,720,721,722,
723,724,725,726,727,728,729,730,731
1780  DATA  801,802,803,804,805,806,
807,808,809,810,811,812,813,814,815,
816,817,818,819,820,821,822,
823,824,825,826,827,828,829,830,831
1790  DATA  901,902,903,904,905,906,
907,908,909,910,911,912,913,914,915,
916,917,918,919,920,921,922,
923,924,925,926,927,928,929,930
1800  DATA  1001,1002,1003,1004,1005,
1006,1007,1008,1009,1010,1011,1012,
1013,1014,1015,1016,1017,1018,
1019,1020,1021,1022,1023,1024,1025,1026,
1027,1028,1029,1030,1031
1810  DATA  1101,1102,1103,1104,1105,
1106,1107,1108,1109,1110,1111,1112,
1113,1114,1115,1116,1117,1118,
1119,1120,1121,1122,1123,1124,1125,1126,
1127,1128,1129,1130
1820  DATA  1201,1202,1203,1204,1205,
1206,1207,1208,1209,1210,1211,1212,
1213,1214,1215,1216,1217,1218,
```

```
1219,1220,1221,1222,1223,1224,1225,1226,
1227,1228,1229,1230,1231
1830  GOSUB 2800
1840  PRINT : PRINT : PRINT
1850  PRINT "-->2.' WORK MEASUREMENT AND
ANALYSIS": PRINT
1860  PRINT "-->SEE DOCUMENT, 'JOB
GRAPHING AND TRENDS' BY CHRYSTOS
SIDERELIS TO INTERPRET"
1870  PRINT "THE TREND FOR THE ";M;'
DAYS PLOTTED ON THE GRAPH."
1880  PRINT
1890  PRINT "-->TOTAL MAN-HOURS WAS
";SUM;" FOR PERIOD BEGINNING ";DE(1);"
AND ENDING ";DE(M);"."


1900  PRINT "
(YYMMDD)          (YYMMDD)"
1910  PRINT
1920  PRINT "-->FOREMAN, PLEASE READ:"
1930  PRINT "F-FIRST QUARTILE (25%)  =
";Q1;" MAN-HOURS WHICH IS THE INNER
CONTROL LIMIT."
1940  PRINT "S-SECOND QUARTILE (50%) =
";MEDIAN;" MAN-HOURS WHICH IS THE
AVERAGE."
1950  PRINT "T-THIRD QUARTILE (75%)  =
";Q3;" MAN-HOURS WHICH IS THE OUTER
CONTROL LIMIT."
1960  PRINT
1970 QD = (Q3 - Q1) / 2
1980  PRINT "-->QUARTILE DEVIATION IS
";QD;" MAN-HOURS WHICH IS A STATISTICAL
MEASURE": PRINT "OF THE VARIABILITY
BETWEEN MAN-HOURS AND IS OFTEN USED AS
THE": PRINT "RANGE MEASURE."
1990  PRINT "-->THE SMALLER THE
DEVIATION, THE CLOSER THE DISPERSION OF
MAN-HOURS": PRINT "TO THE AVERAGE."
2000  PRINT
2010 W$ =  STR$ (W):MXHOURS$ =  STR$
(MXHOURS)
2020  PRINT "-->MINIMUM = "; SPC( 5 -
LEN (W$));W$;" MAN-HOURS"
2030  PRINT "-->MAXIMUM = "; SPC( 5 -
LEN (MXHOURS$));MXHOURS$;" MAN-HOURS"
2040 RA$ =  STR$ (RA)
2050  PRINT "-->RANGE   = "; SPC( 5 -
LEN (RA$));RA$;" MAN-HOURS"
2060  PRINT
2070  PRINT "-->3.  WORK DISPLAY AND
CONTROL GRAPH": PRINT
2080  PRINT "-- THE AMOUNT OF MAN-HOURS
CORRESPONDING TO A GIVEN": PRINT
"DAY(DD) ARE PLOTTED IN THE FOLLOWING
MANNER: *(MAN-HOURS)."
2090  PRINT "-- PERCENT CHANGES BETWEEN
PLOTTED MAN-HOURS ARE RECORDED": PRINT
"IN THE TIME ANALYSIS TABLE FOLLOWING
THIS DISPLAY."
2100  PRINT
2110  IF RA < 2 THEN RA = 2
2120  IF W = MEDIAN THEN W = MEDIAN - 1
2130 T2% = (50 * (MEDIAN - W)) / RA - 1
2140  IF Q1 = MEDIAN THEN T1% = T2% - 1:
GOTO 2180
2150  IF M < 4 THEN T1% = 0: GOTO 2180
2160  IF Q1 = W THEN T1% = 0: GOTO 2180
2170 T1% = (50 * (Q1 - W)) / RA - 1
2180  IF Q3 = MEDIAN THEN T3% = T2% + 1:
GOTO 2200
2190 T3% = (50 * (Q3 - W)) / RA - 1
2200  PRINT "QUARTILE->"; SPC( T1%)"F";
SPC( T2% - T1% - 1)"S"; SPC( T3% - T2% -
1)"T"
2210  PRINT  SPC( 3)"MMDD"; SPC( 3);
SPC( T1%)B$; SPC( T2% - T1% - 1)B$; SPC(
T3% - T2% - 1)B$;
2220  PRINT  SPC( 63 - T3%)"MMDD"
2230 SWITCH = 0
2240  FOR I = BEG TO M
2250  IF YY(I) <  > TEST THEN 2340
2260 DE(I) = DE(I) - (YY(I) * 10000)
2270  FOR K = 1 TO 366
2280  IF JD(K) = FIRST THEN F1 = K
2290  IF DE(I) <  > JD(K) THEN 2320
2300 MH(K) = V(I)
2310 L1 = K
2320  NEXT K
2330  NEXT I
2340 BEG = I
2350 TEST = YY(I)
2360 FIRST = DE(I) - YY(I) * 10000
2370  IF BEG < M THEN L1 = 366
2380  IF SWITCH > 0 THEN F1 = 1
2390  FOR I = F1 TO L1
2400 T4% = (50 * (MH(I) - W)) / RA - 1
2410  IF T4% < 0 THEN T4% = 0
2420  PRINT  SPC( 3 + (JD(I) <
1000))JD(I);
2430  IF MH(I) > 0 THEN  GOTO 2480
2440  PRINT  SPC( 3) SPC( T1%)B$; SPC(
T2% - T1% - 1)B$; SPC( T3% - T2% - 1)B$;
2450 COL = T3% + 1
2460  PRINT  SPC( 64 - COL + (JD(I) <
1000))JD(I)
2470  GOTO 2500
2480  PRINT "--";: GOSUB 3040
2490  PRINT  SPC( 61 - COL)"<--"; SPC(
JD(I) < 1000)JD(I)
2500  NEXT
2510 SWITCH = SWITCH + 1
2520  FOR I = 1 TO 366
2530 MH(I) = 0
2540  NEXT
2550  IF BEG  = M THEN 2240
2560  PRINT  SPC( 3)"MMDD"; SPC( 3);
```

```
SPC( T1%)B$; SPC( T2% - T1% - 1)B$; SPC(
T3% - T2% - 1)B$;
2570  PRINT  SPC( 63 - T3%)"MMDD"
2580  PRINT "QUARTILE->"; SPC( T1%)"F";
SPC( T2% - T1% - 1)"S"; SPC( T3% - T2% -
1)"T"
2590  PRINT : PRINT "-->END DISPLAY"
2600  PRINT : IF Z = 0 THEN 2620
2610  PRINT "-->THERE WERE ";Z;" JOBS
THAT OCCURRED ON SIMILIAR DATES.": PRINT
"PLEASE CHECK THE JOB ENTRY TABLE TO
IDENTIFY THESE ";Z;" JOBS.": PRINT :
PRINT
2620  FOR I = 1 TO M
2630  IF V(I) = V(I + 1) THEN RL(I + 1)
= 0: GOTO 2660
2640 RL(I + 1) = (V(I + 1) - V(I)) /
V(I) * 100
2650 P = 10:RL(I + 1) =  INT (RL(I + 1)
* P + .5) / P
2660  NEXT
2670  PRINT "-->4.  JOB REFERENCE AND
TIME ANALYSIS TABLE": PRINT : PRINT
"-->PLEASE NOTE: ";
2680  PRINT "THE % CHANGE IN THE
REFERENCE TABLE IS THE": PRINT "RELATIVE
CHANGE BETWEEN PRECEEDING MAN-HOUR
OBSERVATIONS.": PRINT
2690  PRINT  SPC(
6)"->MMDDYY";B$;"HOURS";B$;"% CHANGE &
CONDITON"
2700  PRINT  SPC( 6)"--------";B$;
"-----";B$;"--------------------"
2710  FOR I = 1 TO M
2720  IF RL(I) < 0 THEN SH$ = "DECREASE"
2730  IF RL(I) > 0 THEN SH$ = "INCREASE"
2740  IF RL(I) = 0 THEN SH$ = "NO
CHANGE"
2750 DE$ =  STR$ (DE(I)):V$ =  STR$
(V(I)):RL$ =  STR$ (RL(I))
2760  PRINT  SPC( 6)"->"; SPC( 4 -  LEN
(DE$));DE$;YY(I);B$; SPC( 5 -  LEN
(V$));V$;B$; SPC( 8 -  LEN (RL$));RL$;"%
";SH$
2770  NEXT
2780  PRINT  SPC( 6)"------------------
----------------"
2790  GOTO 2860
2800  PRINT D$;"PR#1"
2810  REM  TURN ON PRINTER AND SET FOR
80 COLUMNS
2820  ONERR  GOTO 2840
2830  PRINT  CHR$ (9);"80N"
2840  POKE 216,0
2850  RETURN
2860  PRINT D$;"PR#0"
2870  REM  TURN OFF PRINTER
2880  HOME
2890  VTAB 10: PRINT
2900  FLASH : HTAB 7: PRINT "
"
2910  HTAB 7: PRINT " PROCESSING
COMPLETED "
2920  HTAB 7: PRINT "
"
2930  FOR I = 1 TO 7000
2940  PRINT ;
2950  NEXT
2960  NORMAL
2970  HOME : PRINT "DO YOU WANT TO
CONTINUE? (Y/N) ";
2980  GET A$: PRINT A$
2990  IF A$ <  > "Y" AND A$ <  > "N"
THEN 2970
3000  IF A$ = "N" THEN 3020
3010  PRINT D$;"RUN JOB ENTRY CONTROL"
3020  HOME : PRINT "    REMOVE DISKETTE
FROM DISK DRIVE"
3030  END
3040 HR$ =  STR$ (MH(I))
3050 L =  LEN (HR$) + 1
3060  FOR J = 1 TO 4:S(J) = 0: NEXT
3070  IF T1% < T4% THEN S(1) = 1: GOTO
3130
3080 S(1) = 4
3090  IF T1% > T4% + L THEN S(2) =
1:S(3) = 2:S(4) = 3: GOTO 3220
3100  IF T2% > T4% + L THEN S(3) =
2:S(4) = 3: GOTO 3220
3110  IF T3% > T4% + L THEN S(4) = 3
3120  GOTO 3220
3130  IF T2% < T4% THEN S(2) = 2: GOTO
3180
3140 S(2) = 4
3150  IF T2% > T4% + L THEN S(3) =
2:S(4) = 3: GOTO 3220
3160  IF T3% > T4% + L THEN S(4) = 3
3170  GOTO 3220
3180  IF T3% < T4% THEN S(3) = 3:S(4) =
4: GOTO 3220
3190 S(3) = 4
3200  IF T3% > T4% + L THEN S(4) = 3
3210  GOTO 3220
3220 COL = 0
3230  FOR J = 1 TO 4
3240  IF S(J) = 0 THEN 3260
3250  ON S(J) GOSUB 3280,3300,3320,3340
3260  NEXT
3270  RETURN
3280  PRINT  SPC( T1% - COL)B$;:COL =
T1% + 1
3290  RETURN
3300  PRINT  SPC( T2% - COL)B$;:COL =
T2% + 1
3310  RETURN
3320  PRINT  SPC( T3% - COL)B$;:COL =
T3% + 1
3330  RETURN
3340  PRINT  SPC( T4% - COL )"*";HR$;:COL
= T4% + L
3350  RETURN
```

## Selected Individuals and Organizations Concerned with Computer Use in Parks and Recreation

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Remote Job Entry
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Occupancy Index Analysis
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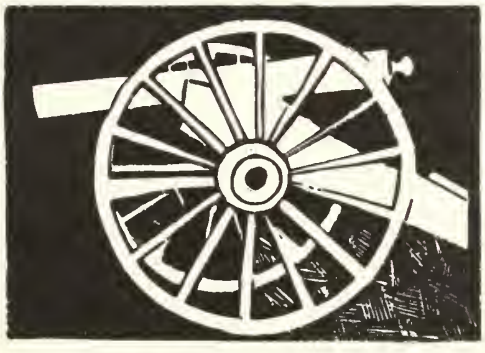

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# Introduction

*by F. Ross Holland, Jr.*

Fred E. Mang, Jr.

**The Casa Grande (Big House) was built 600-700 years ago by irrigation farmers called the Hohokam.**

The management of cultural resources has become a complex and sophisticated profession. Laws, policies, and guidelines exist in considerable abundance to aid and guide those involved in the care and management of these resources, and to hinder others from injuring or destroying them with modern and insensitive development.

At the same time there has been a broadening of the types of cultural resources being preserved. Not too many years ago the involvement of the National Park Service in cultural resources consisted of the care and management of historical parks—almost all of which commemorated political or military personages or events—and parks with Indian ruins or remains. In more recent years the variety of parks has dramatically increased and today there are parks in the System commemorating many phases of American history including businesses, social movements, literary and artistic personages, westward expansion, maritime activities, ranching and farming, immigration, exploration, and industry.

Concomitantly, the Service has become responsible for more complex resources that require more sophisticated treatments. Today it is not just a matter of repairing a structure and having it keep a certain form. It is a matter of understanding what causes a structure to deteriorate and taking precautions to inhibit it; of knowing what to use to preserve old wood and how to test paint samples to bring the faded paint back to its original color so as to restore a building to its exact appearance during the historical period; and of conducting tests with sophisticated equipment to determine what pollutants are doing to a structure.

Until the last decade or so, there were two levels for the development of historic buildings — ignore it or refurnish it. Today the decision-making is far more complex. There are many alternatives, ranging from restoration to commercial use, that the planner and manager have available from which to choose.

For many years the care of these resources—usually buildings, museum objects, and archeological remains—was called simply historic preservation. But as the variety of these resources increased to include folkways, native American religious practices, landscapes, art works, and historic skills and practices, the term historic preservation grew less accurate to describe this diverse collection of resources, and the term cultural resources came into use. It, too, is an imprecise term because it also conjures up visions of the ballet or a symphony orchestra. Nevertheless, it is more descriptive of the broad activity than historic preservation.

The field of cultural resources preservation—not too long ago limited to the disciplines of history, archeology, architecture, and curator—embraces today many disciplines and skills in addition to the traditional ones, including scientists, carpenters, planners, horticulturists, conservators, anthropologists, engineers, masons, and painters to name but a few. The preservation of cultural resources is a sophisticated business.

The management of cultural resources is not limited to just the preservation of them. Maintenance people keep them in good condition and try to inhibit deterioration, rangers protect them from vandalism, fire and theft, and, perhaps most important since it is the goal of what has gone on before, interpreters present the resources to the public.

Cultural resources management is a complicated activity requiring many people with diverse backgrounds, and it is growing more difficult as it matures as a field of endeavor and demands more sophisticated solutions to its management.

The following articles indicate the extent and breadth of cultural resources management. Read, enjoy, and profit from them.

*Ross Holland is the former Associate Director, Cultural Resources Management, National Park Service.*

# Planning For Cultural Properties in the National Park System

*by Louis E. Reid and Donald W. Humphrey*

The Nation's concern for preservation of its cultural resources has grown remarkably over the past three-quarters of a century. During that period a variety of types of areas whose focus is historic preservation has been added to the National Park System, complementing and balancing the initial emphasis on natural areas. A body of policy, expressed in legislation, Executive Orders, and National Park Service directives, has been developed to guide planning for management of cultural resources in the System. A surge of additions of historic properties to the System during the past two decades, together with increasing budgetary restraints as the Nation copes with its economic problems, is forcing managers and park planners to examine a number of innovative approaches in an effort to provide cost-effective protection and appropriate use of historic properties. New legislation providing leasing and contracting authority may help achieve the objectives.

## Growth of Cultural Concerns

Most of the 333 units of the National Park System contain historic or archaeological resources. In nearly 200 of them, preservation of cultural resources is either the primary management consideration or is a major concern. The National Park Service's policies and planning process require the appropriate degree and kind of cultural resource planning and management in all units of the National Park System.

Preservation of cultural resources in the National Park System finds its legislative roots in the Antiquities Act of 1906 (P.L. 59-209, 16 USC 431-33) although it should be noted that what is now Casa Grande National Monument in Arizona was reserved from entry in 1889, seven years prior to the Antiquities Act, to protect the massive ruin of a 600-year-old Indian building. By the time of the National Park Service's establishment in 1916, three Presidents had used the Antiquities Act to proclaim 20 National Monuments, seven of which were historic or prehistoric. Seven more National Monuments which were prehistoric, and six that were historic had been added by 1933. Among these were the George Washington Birthplace National Monument and the Colonial National Historical Park, both in Virginia. In 1933 the Congress authorized Morristown National Historical Park (NJ). These actions launched the National Park Service on a new course in historic preservation which were destined to greatly influence the future growth of the System, and created challenging new demands on its historic preservation planning process.

Extensive and broadened historic preservation responsibilities were also handed the National Park Service in the Reorganization of 1933 when Executive Order 6166, signed by President Franklin D. Roosevelt, in effect consolidated all Federally-owned National Parks, National Monuments, National Military Parks, National Cemeteries, National Memorials, and National Capital Parks into one National Park System.

The Reorganization almost quadrupled the number of historical areas in the System, increasing them from 20 to 77. It also made the system more truly national as it added 57 areas in the 17 predominately eastern states and the District of Columbia. Again, the implications for National Park Service historic preservation planning were profound.

## Preservation Policy

Two years later the Congress enacted the nation's first comprehensive policy on historic preservation. The Historic Sites Act of 1935 (P.L. 74-292, 16 USC 1970) declared it "... national policy to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States."

The Act provided authorities under which successive Secretaries of the Interior have designated donated cultural properties as National Historic Sites by Secretarial order. The most recent unit to be added to the National Park System is the Harry Truman National Historic Site, established by Secretary of the Interior James Watt under authority of the Historic Sites Act. This act also authorized the Secretary, through the National Park Service, to conduct a national survey of historic and archaeological sites, buildings, and objects to determine those with exceptional value for commemorating or illustrating the history of the United States.

The Historic Sites Act also authorized acquisition of both real and personal property for the purposes of the Act, and contracting or entering into cooperative agreements with states, municipal subdivisions, corporations, associations, or individuals to preserve historic properties.

Two pieces of legislation enacted in the mid-1960's added thrust to the cultural preservation movement. The Land and Water Conservation Fund Act provided

a large, reliable, and continuing source of funding, allowing acquisition of property in both new and previously-authorized units of the National Park System. Many of these were historical in nature. Also, these new areas began to more broadly represent the cultural themes of the United States, adding sites associated with the arts, industry, science, women, minorities, and religious themes.

Additional policy geared specifically to cultural resources is contained in the National Historic Preservation Act of 1966, (P.L. 89-665 16 USC 470). This measure states the Federal intent "... to foster conditions under which our modern society and our prehistoric and historic resources can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations."

In 1980 the Congress added a new element to the planning and management equation when it amended the Historic Preservation Act of 1966. The amendment, P.L. 96-515, 94 Stat 2997, provides authority under which the National Park Service can lease historic properties within the National Park System or exchange federally-owned property for non-federal historic property within the System. The legislation also supplies authority to contract for preservation of historic properties.

Determining how and when to use these new authorities in the National Park Service planning process is a matter of the moment for every park manager and planner. National Park Service final rulemaking implementing the authority was issued in late November, 1982.

The Historic Preservation Act also authorized establishment of the National Register of Historic Places, instituted state matching grants-in-aid for historic preservation planning and acquisition projects, and provided matching grants to the National Trust for Historic Preservation. It set up the Advisory Council on Historic Preservation and established procedures insuring that properties on the National Register were not to be adversely affected by Federal or Federally-assisted undertakings or licensing without giving the Advisory Council formal opportunity to comment.

These various provisions serve to extend to other Federal agencies, to States and their political subdivisions, and to local interests the philosophy which the National Park Service has evolved through its decades of cultural resources preservation experience.

This philosophy is embodied in the Service's formal cultural resource management and preservation policy. This opens with the statement that "The National Park Service shall faithfully preserve the cultural resources entrusted to its care and provide for their understanding, appreciation, and enjoyment through appropriate programs of research and interpretation." National Park Service policy for treatment of historic structures follows maxims laid down in 1936 by what is now the National Park System Advisory Board: "Better preserve than repair, better repair than restore, better restore than reconstruct," and, "It is ordinarily better to retain old work of several periods, rather than arbitrarily to 'restore' the whole, by new work, to its aspect at a single period."

Noting that the Historic Sites Act of 1935 places research first among authorities granted, the National Park Service policy calls for conduct and support of research needed to evaluate, preserve, and interpret cultural resources of the National Park System.

The policy goes on to say that research on cultural resources within the System shall be mission-oriented, supporting preservation, development, interpretation, and management. Policy also requires an inventory of cultural resources within National Park System units and appropriate classification for their protection and use.

Executive Order 11593 of May 13, 1971, provides for a central List of Classified Structures (LCS) in the System which are on or eligible for the Register. Currently the List of Classified Structures includes more than 12,000 entries from the 333 units of the National Park System which vary widely in the degree of significance, condition and accessibility for use and interpretation.

In addition to historic structures, the Service has an estimated 10,000,000 museum objects and artifacts of historical significance including the White House furnishing, George Washington's tent, Benjamin Franklin's desk and the contents of Thomas Edison's laboratories, to mention but a few.

## The Planning Process

The need to preserve and protect this astounding quantity of cultural resources, as well as natural resources, and to provide for their use, calls for careful planning. By law, each unit of the National Park System must have an approved general management plan (GMP) to guide the protection, use, management and development of the parks. The GMP is supplemented by various studies and action plans which implement the decisions arrived at in the GMP.

Adequate planning for cultural areas and resources requires a working knowledge of the laws and policies affecting these

resources, and of the special protection and preservation needs and characteristics of historic properties--they deteriorate, they are not self-restoring like natural systems, and their planning requires compromises that are not always readily accepted by all concerned.

The planning process itself is relatively straightforward. The first step is preparation of a Statement for Management (SFM) for each park unit. The SFM documents the park's purpose and objectives, the significance of its resources, legislative and administrative constraints on its management, existing use of its lands and waters, influences affecting park resources and visitors in the park, and problems and issues that management must address in achieving park purpose and objectives.

An Outline of Planning Requirements (OPR), updated regularly, records plans and studies needed to deal with the issues and problems identified in the Statement for Management. The OPR serves to justify and support budget requests for identified planning tasks.

Once a planning effort is approved and funded, a task directive is prepared to refine the task, identify steps to be taken and documents to be produced. It also specifies public involvement and compliance requirements, specialized talents needed and time frames to be met.

Preparation of the General Management Plan includes five phases. The first phase is issue analysis which is used to determine that the issues presented in the Statement for Management remain valid, complete, correctly stated, and that the planning team understands their significance and ramifications clearly.

Development of alternatives is Phase II. This requires tentative identification of alternatives for dealing with planning issues and gathering of information needed in developing the alternatives. Phase III determines if the planning team proceeds directly to preparation of a draft GMP/environmental document or whether it provides for preliminary, structured public input through preparation of a brief document soliciting public response to the issues and alternatives.

The fourth phase is drafting the plan. This process takes into account needs to obtain added views from public officials, other groups, and individuals, requirements for development of new issues or alternatives or restructuring those already in hand, and development, operation, and maintenance costs of whatever is proposed.

The process is designed to assist in developing a proposal that represents the best and most cost-effective strategy for dealing with the issues consistent with park purpose and objectives. The draft plan is constructed so that it satisfies National Environmental Policy Act requirements by combining the proposed plan and environmental consequences under one cover. This phase ends with a review period designed to elicit public response to the proposed actions contained in the plan.

The fifth phase of the process is preparing and publishing the final GMP/environmental document. The final plan is not approved for at least 30 days following its release to the public. This is essentially an appeal stage and at the end of the mandatory review period, the plan is approved, unless new or unresolved planning problems remain which require further adjustment to the plan. Approval of the plan is followed by preparation of budget documents required for subsequent studies, plans, staffing, and development needed to implement the plan. Implementation of the plan, or parts thereof, depends upon Congressional authorization of necessary funds, approval of any needed personnel ceilings, Servicewide priorities, etc.

## The Cost-effectiveness Challenge

The foremost challenge to today's National Park Service planners and managers is to meet cultural resource protection and appropriate use objectives cost-effectively and efficiently. Budget constraints mandate such a course of action and the evolving concepts and tools for cultural resource management provide the means and innovative approaches to achieve it.

All reasonable alternatives require examination. The up-front management decisions reflected at the General Management Plan stage are all-important. Their implications for future protection, cost, use, and management effectiveness predispose and condition numerous management decisions and actions that follow. For instance, with the new leasing and contracting authorities in the Historic Preservation Act amendment, today's park planners for the first time are seriously asking the question: who will manage the resource?

Will property be leased, or management contracted out? How will structures be used, by whom, and for what purpose? Estimates are that 40 to 60 leases may be negotiated per year. Can leasing of structures and of historic sites, such as fields suitable for agriculture, provide protection and be cost-effective while permitting the desired types and levels of visitor appreciation?

Once such primary questions are confronted, and decisions made, the level, kind, and amount of preservation treatment can be determined. The process should and must result in preservation and use commensurate with the significance of the resources. Using this approach, decisions can be made to:

- adaptively use some historic structure for park management or concessioner purpose, thereby avoiding the need to build new structures for these purposes;
- leave certain archaeological resources undisturbed but protected against vandalism;
- stabilize some historic structures as ruins rather than undertake costly restoration of all properties. The General Management Plan for the Chesapeake and Ohio Canal does this, providing for both selective restoration and stabilization;
- encourage the private sector to renovate historic properties for profitable commercial uses and benefit from tax incentives as is being done at Lowell National Historical Park in Massachusetts;
- lease large numbers of structures for commercial use, as is being proposed at Ellis Island in New York, while restoring and interpreting others with the help of donated funds;
- manage small or remote historical areas with minimal staff, emphasizing preservation of the historic fabric without attempting to stimulate high levels of visitor use through promotion of the area or the provision of costly visitor facilities;
- profitably remove forests which have invaded battlefield parks, thus restoring a semblance of the historic scene and making acreage available for farming leases that have the potential for reducing park maintenance costs as well as providing income for cultural resource management;
- contract, where feasible, with local historical associations or other entities to manage historic properties, maintain them, open them for public use, and make approved commercial uses of them. Costs in such cases may be reduced through donated labor and volunteer staffing by interested citizens. Pennsylvania's Historical and Museum Commission follows such procedures. Searight's Toll House, built in 1830 on the old National Road west of Uniontown, is being managed by the Uniontown Area Historical Society. Previous State costs totaled $20-30,000 annually. This year the State's expenses were limited to supplying $8,800 to the Association for a one-time rehabilitation and providing $650 for heat. The Association helps defray costs by charging admissions;
- lease houses for residential and other income producing use. Again, Pennsylvania is doing this. One example is at Washington Crossing, where a five-year lease of a historic property provides a house that also serves as an art studio for the occupant.

These approaches must be used in a context that identifies the purpose of the area, selects the appropriate level of preservation based on the significance of the resource and identifies the amount, kind and location of public use. To the extent that the kinds of innovative and cost-effective management described above can achieve these ends, they should be used whenever possible.

There is a broad consensus in the historic preservation community that if the nation's historic legacy is to be protected, all available means must be used. Volunteerism, tax incentives, leasing, contracting, adaptive use, donations, and cooperative agreements are but some of the potentially cost-effective tools that need to be examined in planning and managing the cultural properties of the National Park System.

*Louis Reid is a Staff Assistant in the office of the Associate Director, Planning and Development and Donald Humphrey is Chief, Park Planning and Special Studies Division, National Park Service, Washington, D.C.*

# Identifying Significant Historical Resources: Some Principles from the National Historic Landmarks Program

*by Benjamin Levy*

Robert C. Post

**Ladd-Gilman House in New Hampshire where Nicholas Gilman, Jr., a delegate to the Constitutional Convention, was born. Built in 1721, the house was designated a National Historic Landmark in 1974.**

There has always been the need to call attention to the sites at which acts of extraordinary human endeavor unfolded, or which symbolize change, progress, and evolution of peoples, or, which are the very products of mankind's creative genius. Throughout the history of the United States, monuments have been erected, memorials implanted, and plaques affixed on places of special value to the nation's citizenry. People in all places, at all times, have said by these gestures, "These places have special meaning for us; they should not be forgotten and they should be cared for."

As the industrialization and urbanization of the United States intensified and land values increased at explosive rates beginning in the late 19th century, a new perspective ripened within the memorializing consciousness of the nation. That new perspective is what we know today as historic preservation. Beginning with memorials and monuments—essentially statuary representing something other than itself—and proceeding through the era of recognizing and protecting separate historic sites and buildings, historic preservation emerged in the mid-20th century as a movement seeking the additional objective of protecting entire environmental ensembles. Not content to call attention occasionally to an event or creative act, contemporary preservation calls on us to live and work amidst the handicraft of the past.

It is this new preservation spirit, reinforced by the law of the land, that confronts land managers and urban planners at whatever level of government with an urgency to identify historic buildings, structures, and sites and to consider their protection as part of the decision-making process. To be effective, the identification process must single out more than what is old. All that is old may be historic but what is old is not necessarily historically significant. The job, then, is to distinguish between resources which are significant and those which are not. One method of determining the difference was evolved by the National Historic Landmarks Program. It provides a sturdy and time-tested model for identifying important historic resources. The National Historic Landmarks Program was authorized by the Historic Sites Act of 1935. The act empowered the Secretary of the Interior, through the National Park Service, to survey, identify, and recognize nationally significant properties in United States history. Even though the mandate emphasized *national* significance, the methodology evolved by the program over its nearly fifty years of existence is equally applicable to state, regional, and local levels of significance. The process is based on a set of principles which are fundamental to a sound system of resource identification. They are:

## 1. Comparative Analysis

This is simply the act of looking at one thing and judging it against others. Such value judgments are instinctive intellectual processes. In assessing groups of buildings, we might ask which are the oldest, or which are the best preserved, or which best illustrate a style of construction. These are questions rooted in the principle of comparative analysis. Without making comparisons, everything is important or nothing is important.

## 2. Classification

The act of classing objects by like characteristics is a mental function universal to the human species and thus intrinsic to the intelligence. We know instinctively that dissimilar things cannot be adequately compared. For the first principle above to operate successfully, therefore, the second, that of classification, must be employed.

The National Historic Landmarks Program utilizes classification in the form of a "theme structure" which is a comprehensive outline of the topics and

periods of U.S. history. Each topic is subdivided into component subthemes and facets, and each subtheme's scope is defined, helping to insure comprehensiveness while assisting the historian in defining the bounds of his study. The theme structure is contained in a printed manual, "Prehistory and History in the National Park System and the National Historic Landmarks Program," which assigns cultural units of the National Park System and National Historic Landmarks to appropriate areas of significance within the theme framework.

No classification system is perfect or complete. The general outline used by the National Historic Landmarks Program was suggested as early as 1928 by a National Park Service advisory body. It has undergone one major change and continual, but gradual, interpretation to account for changes in historical perspectives.

Nor should a classification system be used rigidly. Many historic resources share in a number of themes. Religious edifices can be important not only in the history of religion, but also in the development of the nation's musical heritage and political development. Furthermore, if study indicates a gap in the outline, the theme structure should be modified or reinterpreted to encompass a representative aspect of a property's value that was previously ignored. For all its imperfection and tendency to rigidity, a classification system is indispensable. It helps make order out of chaos, and it compels the mind to systematic inventory rather than leave the process of identification to whim, caprice, or political favoritism. In fact, a rationalized system of survey and identification often affords one means of resistance to unreasonble pressures.

### 3. Comprehensiveness

This principle dictates that in order to fully identify significant resources, the process of identification must be complete; it must consider the whole story. Partial surveys risk overlooking resources that can only be recognized from different perspectives. There is no effective way of judging the value of an historic resource without seeing it in its broadest context. Identifying historic resources to insure geographical representation may guarantee something for everyone but such a result will be intellectually deficient. Visual surveys have their role in identifying scenic, picturesque, and otherwise appealing cultural landscapes and architectural features. These methods, however, are limited by highly subjective aesthetic judgments which frequently deteriorate to expressions of taste or fashion.

A sound identification process must be guided by an intellectual framework which compels the surveyor to answer fundamental questions as to the existence of historic resources in the area of his or her survey representative of historical themes relevant to that area. This demands study of both the particular and general historical literature germane to the subject area. The outline fashioned by this exercise can then be tested by actual survey and amended, as necessary, by resource discoveries as the search progresses.

The following is a partial outline of the classification system used by the National Historic Landmarks Program:

I. The Original Inhabitants

- A. The Earliest Americans
- B. Native Villages and Communities
- C. Indian Meets European
- D. Contemporary Native Cultures
- E. Native Cultures of the Pacific
- F. Aboriginal Technology

II. European Exploration and Settlement

This theme covers related activities of European nations within the present territory of the United States from the earliest recorded voyages until 1917. (Each theme is so described in the complete outline but this descriptive paragraph is deleted for all but this example.)

- A. Spanish Exploration and Settlement

  This subtheme includes all activities by Spain within the present continental and overseas territory of the United States from Columbus' landing on St. Croix in 1493 until the conclusion of the Spanish-American War in 1898. (Each subtheme is so described in the complete outline but this descriptive paragraph is deleted for all but this example.) Facets:

  1. Caribbean
  2. Southeast
  3. Southwest
  4. California
  5. Pacific

B. French . . . .

1. . . .

2. . . .

3. . . .

4. . . .

C. English . . . .

6 facets

D. Other . . . .

3 facets

III. Development of the English Colonies, 1700-1775 (This and the succeeding themes have subthemes and facets not reproduced here.)

IV. Major American Wars

V. Political and Military Affairs

VI. Westward Expansion, 1763-1898

VII. America at Work

VIII. The Contemplative Society

IX. Society and Social Conscience

## 4. Criteria

How to define significance is a fundamental question confronted by any resource identification process. Expressing that definition, whatever it may be, is the job of criteria. Statements of criteria are many and varied; they have changed with time and circumstance. Although imperfect and subject to reinterpretation, they are essential because they make the identification process objective and legitimate and less subject to whim or perversity. The following are the criteria adopted by the National Historic Landmarks Program:

I. The quality of national significance is ascribed to districts, sites, buildings, structures and objects that possess exceptional value or quality in illustrating or interpreting the heritage of the United States in history, architecture, archeology, engineering and culture, and that possess a high degree of integrity of location, design, setting, materials, workmanship, feeling and association, and:

A. that are associated with events that have made a significant contribution to, and are identified with, or that outstandingly represent, the broad national patterns of United States history and from which an understanding and appreciation of those patterns may be gained; or

B. that are associated importantly with the lives of persons nationally significant in the history of the United States; or

C. that represent some idea or ideal of the American people; or

D. that embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style or method of construction, or that represent a significant, distinctive and exceptional entity whose components may lack individual distinction; or

E. that are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition but collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture; or

F. that have yielded or may be likely to yield information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States. Such sites are those which have yielded, or which may reasonably be expected to yield, data affecting theories, concepts and ideas to a major degree.

II. Ordinarily, cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings and properties that have achieved significance within the past 50 years are not eligible for designation. Such properties,

however, will qualify if they fall within the following categories:

A. a religious property deriving its primary national significance from architectural or artistic distinction or historical importance; or

B. a building or structure removed from its original location but which is nationally significant primarily for its architectural merit, or for association with persons or events of transcendent importance in the nation's history and the association consequential; or

C. a site of a building or structure no longer standing but the person or event associated with it is of transcendent importance in the nation's history and the association consequential; or

D. a birthplace, grave or burial if it is of a historical figure of transcendent national significance and no other appropriate site, building or structure directly associated with the productive life of that person exists; or

E. a cemetery that derives its primary national significance from graves of persons of transcendent importance, or from an exceptionally distinctive design or from an exceptionally significant event; or

F. a reconstructed building or ensemble of buildings of extraordinary national significance when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other buildings or structures with the same association have survived; or

G. a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own national historical significance; or

H. a property achieving national significance within the past 50 years if it is of extraordinary national importance.

## 5. Professionalism

For the ultimate product of the identification procedure—the inventory and assessment—to go successfully unchallenged it must be the product of expertise. To get good architecture, get a good architect; to get good history, get a good historian. The craft of history is based upon its own professional principles—test for validity, comparative weight of evidence; currency of interpretation, and so on. The application of these principles requires a proficiency for which an historian has trained.

## 6. Ranking

The process of surveying, identifying, and inventorying significant historic resources may seek to distinguish those resources in ways from gross to subtle. The historian might distinguish merely between the significant and the insignificant. He might draw the line between nationally and less than nationally significant resources. He might group resources by local, state, regional, and national significance and within each of these categories list them by relative order of importance. The latter scheme is ideal; it is also the most difficult, tedious, and expensive. It is, however, the most responsible way the historian can serve both the manager and planner.

The manager's dilemma is how best to expend limited funds on historic resources that demand more than he or she has to spend. By ranking historic resources in a scale of significance, the historian provides a basis for choice for the manager. This is not to suggest that the manager's decision will be determined by the ranking of resources, but such ranking provides a vital component to the overall data upon which the manager will act.

## 7. Independence

Just as the most responsible way for the historian to identify significant historic resources for the manager is to rank them comparatively, the most responsible way the manager can requite the historian is by assuring that the historian render his or her assessment of significance independent of the factors it is management's obligation to weigh, such as expense, practicality, and political outcome. By cooperating thus in their respective spheres, manager and historian can mutually generate a sound and defensible inventory of historic resources.

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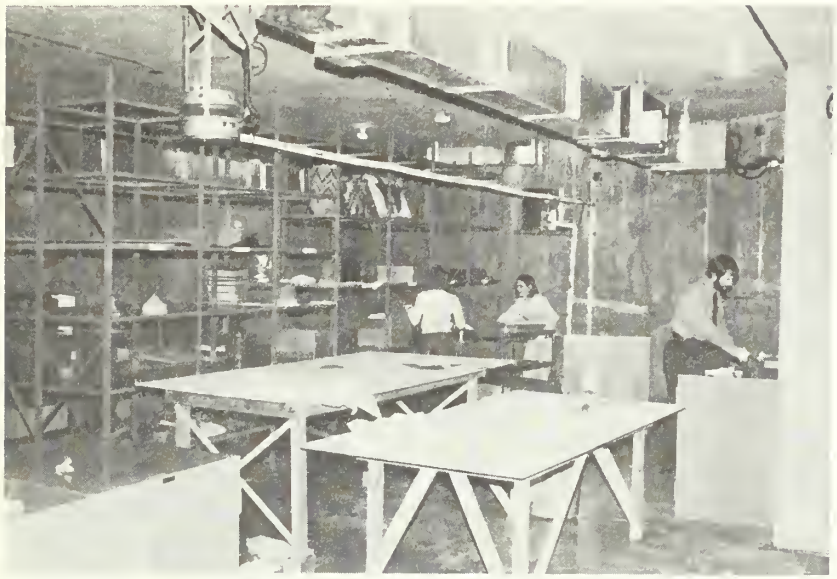
# Collection Management Planning in Parks

*by Ann Hitchcock*



*Arthur C. Allen, NPS*

**Curatorial team coordinated by the Regional Office helped improve storage and prepared a Collections Preservation Guide for Nez Perce National Historical Park (November 1982).**

Most parks have collections of objects. [1] For some parks the collections have been made intentionally. For others, the collections are accumulations of gifts, isolated objects brought in by well-meaning visitors and park staff, and miscellaneous other items that "just appeared" in a back room, most of them remaining undocumented. These unplanned and unrecorded collections are common in parks on the national, regional, state, and local level. Because park managers are accountable for these collections, this situation should be of considerable concern.

The purpose of this article is to compare the development of collections by museums and parks, discuss the factors peculiar to parks that might lead to unplanned and undocumented collections, and outline planning strategies that will provide parks with coherent, meaningful, useful, and well cared for collections.

## The "Museum Role" of Parks

Many parks operate museums, yet fail to acknowledge this "museum role" as a legitimate and integral part of a park's function. Most parks collect, interpret, and display objects to the general public and, thus, technically qualify as museums. But park staff often do not consider their parks or themselves a part of the museum profession. Consequently, the basic tenets of the museum profession, in collections planning and management, are frequently unknown, ignored, or, at best, overlooked.

Part of the reason for this uncertainty regarding the "museum role" of parks is historic. The legal mandate establishing most parks does not mention the preservation of cultural objects or natural history specimens. Even in cultural parks, the historic site, scene, and structures are the primary factors identified in the park's legal mandate and statement of purpose.

By contrast, generally a museum is established for the express purpose of collecting, documenting, researching, and displaying objects from a particular culture, time period, or area. These functions are stated in the museum's charter and bylaws. Additional documents such as a collections policy, are developed by the museum to outline specific types of objects to be collected and the manner in which those collections will be managed and used. In museums the linkage between the objects and the charter is quite clear. In parks this linkage is less defined and frequently absent.

As a result of this lack of clear definition of the role of objects as resources in parks, collections tend to be haphazard rather than planned. Collections management is also frequently haphazard with the result that parks lack accountability for these collections and are unable to exert control over their growth, preservation, use, security, and disposition.

While specific reference to collections may be absent in the legislative mandate, early planning documents should define the kinds of objects, if any, that will be recognized as legitimate park resources deserving of attentive management.

## Planning Strategies for Park Collections

Most park systems require a series of planning documents to be written and reviewed during development and full operation of a park. To establish collections management as a legitimate function of parks, it must be incorporated into each level of planning. By way of demonstrating how this might be done, the National Park Service planning process is used to show where and how collection management concerns may be incorporated.

The National Park Service has guidelines and procedures for management of object collections.

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[1]The term "objects" will be used to refer to historic and prehistoric objects and natural history specimens.

Two documents, the Scope of Collection Statement and the Collection Preservation Guide, define what a park may collect and how those collections will be preserved. These documents, however, are only a small part of the planning process. Clearly, to gain the attention of park managers, collections management planning must be integrated into primary planning documents.

In the following discussion, the purpose of the primary National Park Service planning documents is outlined, and their relevance to collection management issues is assessed.[2]

Richard Frear, NPS

Cataloguing and storage area in new facility (Building 315) at Golden Gate National Recreation Area. Collections shown are from the National Maritime Museum.

## New Area Studies

Planning studies are conducted by the NPS to assist the Department of the Interior and Congress in determining the kind of federal actions that may be desirable for the management and protection of areas considered to have potential for addition to the National Park System. A reconnaissance survey is done to determine, among other factors, the significance of the area's resources and existing provision for protection of the resources. Object resources, if present, should be part of this evaluation. If the area is deemed significant, a more detailed study is prepared, suggesting alternatives for protection and management, including federal and non-federal options.

## Legislation, Presidential Proclamation, or Executive Order

The purpose of a National Park Service area is usually defined in the legislation, presidential proclamation, or executive order establishing the area. The enabling law, the accompanying legislative history and an activation memorandum, analyzing the legislation, are the nucleus of the planning process.

In rare cases, the preservation of objects is a part of the legislative mandate, but usually collections are not mentioned. In the absence of specific legislation, parks rely on existing general legislative authority to collect and preserve objects. This authority derives principally from six laws and an executive order (i.e., Act for the Preservation of American Antiquities, 1906; National Park Service Organic Act, 1916; Historic Sites Act, 1935; Museum Act, 1955; National Historic Preservation Act, 1966; Executive Order 11593; and National Historic Preservation Act Amendments, 1980). When the legislation for a park does not specifically mention objects, the determination of whether a park will establish and maintain object collections is made in subsequent planning documents. In addition to conformity with enabling legislation, proclamations, or executive orders, the management and care of park resources must comply with the NPS **Management Policies,** which has fairly specific mandates regarding the care of object resources (See Chapter 5).

## Statement for Management

The Statement for Management is a brief document providing an overview of the purpose, resources, major issues, and management objectives of the park. It is the park's first operational planning document. In this document the purpose and objectives of the museum collections, if any, are broadly stated and the contents of the collections are inventoried and analyzed for significance. Highly significant objects or specimens are noted.

Particular issues and deficiencies, such as unrecorded objects, lack of adequate storage and fire protection of security, and lack of preservation maintenance or stabilization of objects are listed. The need for, or status of, plan-

[2]These planning documents are required for NPS areas. Many current park plans, however, fail to take museum object resources into account and need to be amended to correct for this omission.

ning and inventory documents pertaining to collections is also described (e.g, Scope of Collection Statement, Collection Preservation Guide, catalog records).

## Outline of Planning Requirements

The Outline of Planning Requirements lists in priority order, for a five-year period, the plans and projects identified in the Statement for Management. This process guarantees that projects will be accomplished in a logical sequence, according to the greatest need. Programming documents (Forms 10-238 and 10-237) are submitted to describe projects and request funding.

At this point the collections management activities compete with other park activities for funding. The needs of the collections must be fully described as well as the impact on the resource, if those needs are not met. Also noted are policy requirements and legislative mandates pertaining to the management of the resource, such as the Executive Order 11593 and National Historic Preservation Act Amendments of 1980 that require Federal agencies to locate, inventory, and nominate to the Secretary of the Interior all objects under their jurisdiction or control that appear to qualify for the National Register.

Collections needs that might be identified through the Outline of Planning Requirements include, but are not limited to the following:

1. Write Scope of Collections Statement to identify types of objects appropriate for park collections.
2. Write Collection Preservation Guide that will outline collection management deficiencies and recommend specific corrective action.
3. Accession and catalog the backlog of uncataloged objects; enter records into the National Park Service's National Catalog of Museum Objects.
4. Reorganize storage area and purchase new storage equipment to provide adequate preservation and security for collections.
5. Conduct a condition survey to determine the condition and stability of objects in the collections and identify specific objects needing conservation treatment.

The Outline of Planning Requirements is a critical step toward the preservation and management of museum collections. To receive adequate recognition by management, the collection needs must be clearly stated, the urgency must be accurately assessed, and the need for the project to meet legislative mandates or National Park Service policies, guidelines and directives must be demonstrated. Care must be taken that requests are listed in a logical sequence with prerequisite tasks receiving higher priority.

## Task Directive

Once a project has been approved and funded, a task directive is prepared, defining the task and identifying who will accomplish it. In some cases, the work may be done by park personnel, in others, regional or center staff, or a contract with professional curators or conservators might be used. If the task is complex, a detailed plan with time limits and funding allocations is prepared.

## General Management Plan

Another planning document that includes consideration of museum collections is the General Management Plan. This plan provides the long-range strategies for addressing issues and achieving management objectives over a five- to ten-year period. The plan covers two types of strategies—those to preserve and manage the park's resources, and those to provide for interpretation and visitor use. Museum collections are affected by both objectives.

With reference to collections management, the document should identify major long-term needs. If there is an extensive backlog of uncataloged collections, the need to bring catalog records up-to-date and gain accountability for the objects should be identified. Another typical problem that currently faces many park managers is gaining accountability over park archeological collections that are scattered and stored at non-National Park Service institutions, such as universities and museums. This situation usually occurs as a result of the outside institution having a contract to survey or excavate in the park and then continuing to hold the collections after completion of the project. To gain accountability over such dispersed collections, the park manager might describe a project to inventory, catalog and return the objects to a new storage area prepared for them at the park or in the region. The project would require long-range planning to locate, or construct, and prepare the storage room, and the actual transfer of objects might occur over several years.

A project that involves the second strategy, to provide for interpretation and visitor use might be a park manager's desire to refurnish and interpret an historic structure that was heretofore closed to the public. In relation to collections, the plan would call for an Historic Furnishings Report to research the historic contents of the structure; if warranted, propose a refurnishing scheme and identify the objects to be used, either newly acquired or from park collections; and provide a plan for the curatorial maintenance of the furnishings.

The General Management Plan, thus, is a useful catalyst for addressing long-range collections management needs. Beyond the **General Management Plan** there are a variety of resource-specific plans that are used by the National Park Service.

## Resource Management Plan

All parks are required to complete Resource Management Plans that identify and rank, according to priority, important and urgent natural and cultural resource management problems, and then propose a schedule for taking action to resolve them. In many cases, problems identified in the Statement for Management, Outline of Planning Requirements and General Management Plan will be restated and further developed in the Resource Management Plan, depending on the significance of the resource and the urgency of the problem.

As with previous documents, the plan states the problem, suggests alternative solutions and probable impacts, and recommends a course of action. Reference is again made to legislative mandates and National Park Service policies and guidelines that need to be met. Parks with collections that are uncataloged, stored in conditions detrimental to their preservation, or subjected to unnecessary security or fire risks, must identify these and other urgent problems in the Resource Management Plan.

## Plans and Guides Specific to Collections

The three primary planning documents that are prepared for collections are the Scope of Collection Statement, the Collection Preservation Guide, and the Historic Furnishings Report. In addition, many parks are beginning to use "collection condition surveys."

The preparation of each of these documents is programmed into the park planning process through the Statement for Management, the Outline of Planning Requirements, the General Management Plan, and the Resource Management Plan.

The *Scope of Collection Statement* is a comprehensive, but succinct, statement of the subject matter covered by the collection and the type and extent of objects to be collected. It also identifies the staff and facilities available for curation and preservation of the collection, and briefly reiterates the National Park Service standards by which the collection will be maintained. It is usually prepared by the park, in conjunction with the regional curator, and may involve the Curatorial Services Division in the Washington Office. It receives final approval in the regional office.

The *Collection Preservation Guide* is an all-encompassing action plan for the curation and preservation of a park collection. If a Scope of Collection Statement has not been written, the Guide may provide suggestions for one. It examines the accession and catalog records and makes any necessary recommendations for action to bring them up to standard. It reviews and makes needed recommendations regarding storage. The plan may call for redesign of the storage area, recommend the purchase of new storage cabinets or environmental control equipment, and suggest installation of certain fire protection and security devices. It will examine the objects on exhibit and propose changes to improve their preservation.

The plan will also include maintenance schedules for the objects in storage and on exhibit. Relevant reference material to assist the park in collection management is provided. In addition, the guide will make recommendations regarding staffing for the park's curatorial program. The Collection Preservation Guide is usually prepared by an outside party for the park, i.e., the regional curator, the Division of Curatorial Services in the Washington Office, or a professional contractor specializing in collections management.

The *Historic Furnishings Report* provides historical documentation on a structure and its contents and, if appropriate, makes a recommendation to refurnish. The plan has an administrative section and an historical data section. The administrative section describes the location and proposed use of the structure; the interpretive objective; the operating plan, including visitor circulation, and staffing; and provision for storage of the documents, photographs, and tapes resulting from the study. The historical data section includes an analysis of the historic occupancy, documentary evidence of historic furnishings, and recommendations regarding refurnishing. If the structure is to be refurnished, recommendations of furnishings to be used and their acquistion and documentation, installation, maintenance, and protection are provided.

The *"Collection Condition Survey"* is a detailed survey of all or part of a park's collection, to evaluate the condition of the objects from the standpoint of preservation. The survey may examine groups of objects, (i.e., metal objects or paintings) or individual objects and make recommendations for actions to improve preservation, such as revised storage or environmental conditions, or treatment of individual objects by a professional conservator (e.g., cleaning a painting, repairing a basket). The survey is usually accomplished by a professional conservator, either from the Division of Conservation, Harpers Ferry Center or regional staff, or by contract.

These four documents are the essence of collections management planning in the National Park Service. They are used in concert with the overall planning documents for a park to provide coordinated collections management.

## Conclusion

Collection management planning in parks is markedly different from collection management planning in museums, although the goal is the same: to document, preserve, and interpret the collections. Collection management planning in parks is far more complex. Whereas the purpose of a museum focuses on a single resource, the objects, the purposes of a park focus on a multiplicity of resources, only one of which is the object collection. Consequently, to gain recognition and have an impact, collection management planning in parks must be integrated with the overall park planning process that encompasses all resources. When collection management requirements are integrated into a park's planning process, and park management is effective in implementing the approved plans, then the collections will be assured of proper documentation, preservation, and interpretation.

*Ann Hitchcock is Chief Curator for the National Park Service.*

# Maritime Preservation in America - Coming of Age

*by J. Revell Carr*

*Mary Anne Stets*

**The last surviving wooden American whaleship, the *Charles W. Morgan*, built in 1841, being preserved at Mystic Seaport.**

It should be clear to anyone who was near a television set on the 4th of July 1976 that there is a great fascination with the sea. The brilliant success of the op-sail program as part of this nation's bicentennial celebration is clear evidence of this interest. This country's relationship with the seas and waterways is as old as the settlement of this continent. While we often think of maritime history as a separate, somewhat esoteric subject, a closer examination will reveal that it is woven into the fabric that makes up our nation's history.

This article will review maritime preservation in broad terms, touching on at least 10 different manifestations of the effort.

## Maritime Museums

The tradition of the American maritime museum has its origins nearly 200 years in our past. In 1799 the East India Marine Society in Salem, Massachusetts, was established and began what was to develop into the Peabody Museum of Salem, one of our leading maritime museums.

Now, the maritime museums of this country have developed rich holdings in many traditional museum categories. Maritime paintings range from dramatic seascapes by highly skilled artists to primitive ship portraits by self-trained pier-head artists. Maritime subjects were favorite among print makers throughout the history of this nation, and therefore our collections are strong in this category as well.

Since we are dealing not only with the art but with history, the maritime museums abound with historical artifacts, items used by sailors in their daily lives, oil lamps, uniform items, sea chests, and ditty boxes. Our exhibits and storage areas contain the trade items and those exotic items found in far off lands. Our museums deal with sculpture in a variety of forms, ranging from figureheads, which adorned the bows of ships to three dimensional representations of the ships themselves, in the forms of builder's half models to complex and exquisitely detailed ships' models. The folk arts of the sailors are also represented in the

form of knot work, models in bottles, and scrimshaw. Actual boats are also found in our maritime museums and reveal a great deal about the maritime characteristics of their region.

There are several dozen good maritime museums functioning in this country. More than 30 of them belong to an organization known as the "Council of American Maritime Museums," which acts as a forum for discussion among these museums, focusing on the unusual problems they share. The great majority of our maritime museums are either regionalized or specialized in that they treat a particular subject.

## Ship Preservation

It is perhaps in this field of the preservation of full size ships that the image of maritime preservation is most firmly seated. There is no doubt that they, in and of themselves, make dramatic statements, and because of that there seems to be a great deal of interest in acquiring square rigged vessels, in particular, to grace waterfront areas. Obviously notable among preserved ships in this country are the CONSTITUTION in Boston, which is still a commissioned vessel in the United States Navy, and the 1841 whaling bark CHARLES W. MORGAN being preserved at Mystic Seaport Museum. This is the last surviving example of more than 500 similar whaling ships that dominated the whaling industry in the mid-19th century. A number of other notable successes include THE STAR OF INDIA, in San Diego, the recently restored ELISSA in Galveston, and THE DELTA QUEEN working on the Mississippi.

Ships themselves create a discipline for those who are seeking to preserve them. If you don't care for them well, they sink. It has happened in New England with a coasting schooner, it has happened in New York with a harbor vessel of considerable size, and it has happened recently in Seattle. What is essential is a responsible approach to the preservation of any ship where its long term survival is the objective.

## Historic Structures

In a number of locations around the country there are still historic structures in existence which served the maritime needs of the nation. One major and most challenging project is being handled by the National Park Service in the Boston Navy Yard. There such distinctive buildings as the Chain Foundry and the 1,200 foot granite rope walk remain as very significant documents of that yard's earlier operation.

It is, of course, highly desirable to preserve maritime structures in their original settings, such as South Street in Manhattan or Bath, Maine, but this is not always possible. They may have to be moved to "maritime sanctuaries" such as Mystic Seaport Museum in Connecticut or St. Michaels on the Chesapeake. The challenge here is to find a balanced approach to the long term preservation of the structures and possible alternate use which insures their survival when pure preservation funding is not available.

## Maritime Education

In our field, maritime education takes place both at sea and ashore. However, this reference is to the traditional education program. Like most museums, the maritime museums are given the great opportunity to work with tens of thousands of young people in school groups each year. Their interests seem strong both in the museums and in the ships, and, of course, it is our hope that we will spark an interest that will be kindled into later curiosity in the maritime field.

The opportunities for undergraduate training in maritime subjects are quite limited. There are several colleges, particularly in the Northeast, where some specific courses are taught in maritime history, but this is not generally a detailed approach. There exists, however, the Sea Education Association which works out of Woodshole, Massachusetts, with academic training ashore and at sea on their schooner, WESTWARD.

Mystic Seaport Museum also conducts a unique program with a full academic semester of maritime studies and credit being awarded by Williams College. On the college graduate level there are again individual opportunities at certain universities for some study in this field, and Mystic Seaport is operating for the 29th year its graduate level program in maritime studies during the summer months.

Finally, under this category of Education, there are great opportunities in the field of what is now known as adult education. Courses are being taught in navigation, in boatbuilding and a variety of other maritime skills or arts. In addition, academic symposia are developed and conducted by a variety of organizations.

## Maritime Libraries and Publications

The focus of maritime library support for scholars working in the field is found in maritime museums. The libraries at the Peabody Museum, in Salem, at Mystic, at Mariner's Museum, and at the Philadelphia Maritime

Museum all serve well in this role. Their holdings are widely varied, but include in most instances not only imprints but enormous manuscript and archival collections as well as other related items such as navigational charts and extensive collections of ship's construction plans.

It is also within the maritime museums that a great deal of publication in the field develops. The books and monographs produced by the museums cover an extremely wide range of subjects covering the museum's regional stories and their areas of special interest.

A number of the museums have their own journals, and other associations and special interest groups have their magazines or journals. Through these publications and periodicals a great deal of maritime history and tradition is being preserved.

## Sail Training

The maritime preservation field is not content simply to preserve the objects, but feels that a major emphasis should be placed on the experience of going to sea through its sail training programs. While most of these programs are aimed at young people, there is an increasing interest among adults and there are more opportunities for adults to go to sea in large vessels under educational programs. The focus of this activity is the American Sail Training Association.

## Skills Preservation

In addition to preserving the experience of going to sea, the maritime preservation field also recognizes the necessity to preserve the skills that are needed to build and maintain historic vessels. In some instances this commitment has been made out of necessity as institutions took on the responsibility to save ships. A key element of these programs has been the passing on of skills from one generation to another. In a number of maritime preservation efforts and museums, skills preservation is being carried out in relation not only to large vessels but also small boat building.

## Oral History

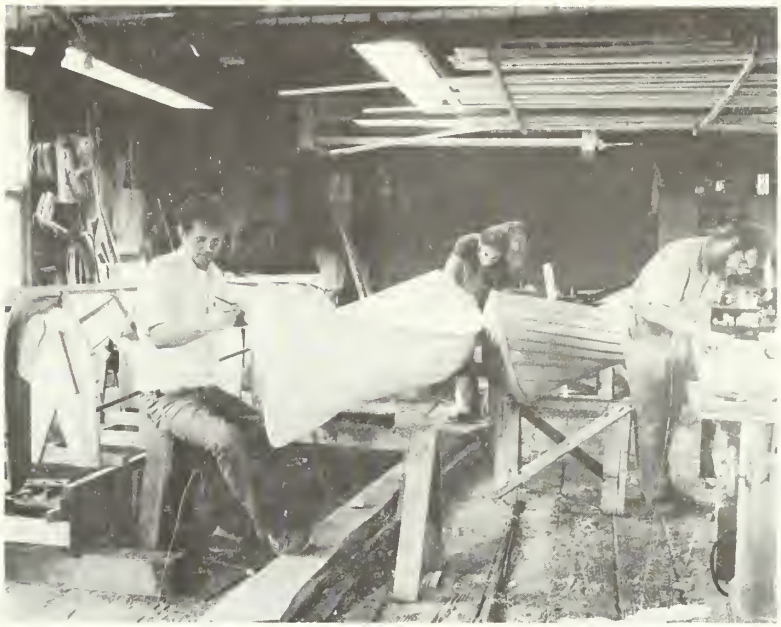
For the maritime museums, the great majority of oral history work is classified as applied research rather than theoretical. As the museums seek to interpret the American fisheries industry, the life of the deep sea sailor, and many other subjects, interviews are being held with those few individuals who can be found who have had these experiences. In a number of instances, projects are being carried out with audio and video tape and film to record current activities, and to assist with proper interpretation or our on-going maritime story.

## Maritime Festivals

As mentioned earlier, the success of the op-sail program in New York in 1976, and more recently in Boston and Philadelphia, gives clear testimony to the interest of the American people in the sea. These maritime festivals bring hundreds of thousands of people to the water and give them a greater awareness of this part of their history. While these major events, focusing on the square rigged training vessels of the world, attract enormous publicity, there are numerous smaller programs being carried out around the country.

*Lester D. Olin*

Interior view of the 1844 Charles Mallory Sail Loft, one of the historic buildings moved to Mystic Seaport Museum. Unique suspension of the stove provides clear floor space for spreading out canvas sails.



Mary Anne Stets

**Master boat builder Barry Thomas building Rangeley Lake boats with apprentices at Mystic.**

## Urban Waterfront Restoration, Preservation and Revitalization

Within American cities there has developed an increased awareness of the waterfront as a major asset. Unfortunately, in most instances, years of neglect have taken traditional maritime structures such as warehouses and port facilities to irretrievable states of deterioration. However, in some areas, original buildings can be salvaged and restored. In New York, Baltimore and other cities and towns revitalization projects incorporating commercial development and non-profit maritime-oriented activities can be seen. As each of these projects proceeds, more Americans will be drawn to the waterfront and to their maritime traditions.

Within the maritime preservation effort there are some very encouraging prospects. Eighteen months ago the National Trust for Historic Preservation sponsored the second National Maritime Preservation Conference. An outgrowth of this conference was a National Trust Task Force focusing on our maritime heritage. The task force suggested that National Trust Grant funds could be effectively used in bringing together the various elements of the maritime preservation field, rather than make small individual grants for specific projects. Three subcommittees of the task force will work to encourage the establishment of professional standards in all aspects of our work, and to address major preservation and education issues as well as major business and political issues relating to maritime preservation. The objective is to have a position paper on standards and priorities prepared for the annual meeting of the National Trust in May of 1983.

The international situation that exists in this field should be mentioned. For more than a decade there has been an organization known as the "International Congress of Maritime Museums," which functions as a vehicle for coordinated international efforts in the maritime field. This group meets every three years, with an Executive Council meeting annually to carry on the business of the Congress.

Certainly there is a great deal of work to be done. New museums are needed. There should be, for example, a museum of the fisheries. Certain regions do not have maritime museums telling their stories. Certainly there are other ships to preserve and efforts are moving forward there. The endangered historic structures need to be recognized and adopted by preservation organizations. There is ample work to absorb the energies of many individuals and organizations.

It is apparent that in maritime-related efforts there are some needs at the national level. The submerged archeological sites, consisting primarily of shipwrecks, are among the most endangered of our cultural resources since they are essentially at the mercy of treasure hunters and souvenir-seeking divers. National leadership is required to bring about strong legislation to protect these resources, and enforcement of this legislation is also necessary. It also seems that within the Department of the Interior or the National Park Service there is no office with particular maritime cognizance. I would suggest that such an office be established so that staff members with particular sensitivity to the protection of maritime resources be able to review other service or department projects.

It is my opinion that maritime preservation in this country is coming out of its adolescence. It has survived its difficult early years. It has come through the growing pains and the projects that have failed. But all of that experience has created a new awareness of what is needed within this field. As I look to the future I see an awareness of high expectations in the maritime preservation field, and an awareness of the benefits that can come when a mature, rational, organized approach is clearly defined.

*J. Revell Carr is Director of the Mystic Seaport Museum in Mystic, Connecticut. This article is an abbreviation of a paper Mr. Carr delivered at a meeting of the George Wright Society, October 18-20, 1982, in Washington, DC.*

# Interpretation of Indian Subject Matter

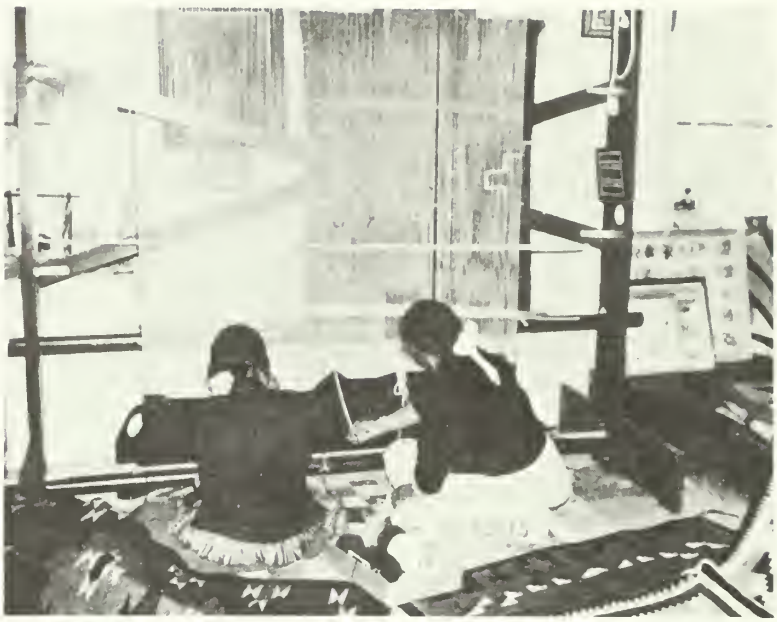
*by David M. Brugge*

A great many of our National Park areas have interpretive themes that deal with or relate to American Indian prehistory, history, or culture. We should be, on the basis of experience, leaders in the field of interpreting such subject matter. In actual fact, we still have a ways to go. Good interpretation should be attractive to all potential audiences, yet many of our programs fail to appeal to Indians or even to some non-Indians who have developed a real interest in Indians. Interpretation of Indian subjects requires many of the same sensitivities that apply in dealing with stories relating to any minority ethnic or racial group, but can often be even more difficult because the cultural and language differences are considerably greater than in most other cases.

## Stereotypes

One problem encountered is that of stereotypes. Although not as complex as some other problems, it is not really as simple as it sounds. Stereotypes are variable through time and space and among different social groups. And, there are real differences among peoples, and these are often the basis of stereotypes.

Identification of a stereotype is not always easy. According to Webster's New Collegiate Dictionary, 1977 edition, a stereotype is "a standardized mental picture that is held in common by members of a group and that represents an oversimplified opinion, affective attitude, or uncritical judgment"; the verb includes the meaning to "make hackneyed." The adjective form means "lacking originality or individuality."



*Fred E. Mang, Jr.*

*Richard Frear*

**Factual interpretation advances the appreciation of American Indian culture to a wider audience.**

On the basis of these definitions, it appears obvious that stereotypes of other peoples would frequently develop as a result of superficial knowledge. There are far too many cultures in the world for any one person to have in-depth knowledge of all, or even of all those with which it might be necessary to interact.

Stereotypes provide people with rule-of-thumb ways of relating to various groups. They are often neutral in terms of values, sometimes complimentary, but all too frequently have derogatory connotations in terms of the values held by the users. Even those that connote positive values may cause resentment due to the effect they may have of denying a person his or her individuality. They can also become a vehicle for overly romanticizing a people, resulting in as distorted, if not as unflattering, a picture as do those with negative connotations.

It is important to keep in mind that all people are individuals and that while they are likely to conform in most ways to the standards and customs of their own cultures, they usually have their own personal quirks as well. In addition, the ways in which they conform are usually far more complex and variable than they appear to the casual outside observer.

Stereotypes can be recognized, but they often creep into the work of even the most fair-minded interpreters. Characterizations that are presented as always true are very likely to be stereotypes, although all adjectives should be subject. "Warlike" and "treacherous" are obvious prospects for stereotyping, but how about "peaceful," "artistic," and "docile," the last a common term in Spanish colonial documents. Nouns also stereotype, however, and "savages," "barbarians," and "pagans" are clear examples of words that can be used to imply that another people is inferior.

One unfortunate by-product of stereotypes, or perhaps more properly, an attempt to avoid them, is that of creating euphemisms, words that really say about the same thing but which pretend that they do not. Once a euphemism becomes accepted, it frequently takes on all the negative connotations of the original and it becomes necessary to look for a new euphemism. In searching for alternative terms, when they are required, it is important to try to find words that actually do convey a different meaning, those that cannot be easily distorted, nor that are overly cumbersome to use.

While single words can create very obvious stereotypes, the presentation of a condition or situation as an alleged recreation of the past can often become the vehicle for stereotyping, sometimes without intending to do so. We all recognize the scene of "happy, simple Blacks on the plantation" as both a stereotype and a major distortion of truth. How many see the similarities in a story that depicts "happy, simple Indians in the mission" and what have they done about it?

This last example raises another issue, that of tactful handling of difficult subject matter. The most difficult subjects are those dealing with two or more minority peoples. In the example of the mission, the relationship between the missionaries and the missionized is peaceful, at least on the surface, over periods long enough that those so inclined can make a case to support their stereotype. The "plantation" paradigm, as it relates to the mission, is naturally pleasing to some visitors. On the other hand, Indians are likely, justifiably, to take offense. Dealing with the problem of cultural conflict, whether in overt warfare, competition short of war or in a dominant-subordinate relationship, presenting both sides fairly is not at all easy.

## Points of View

Interpretation needs to be lively, for it does not have a captive audience. A program that tells a story from the point of view of only one side can allow the audience greater opportunity for identification with the subject and thus creates greater interest. Innovative methods are required to tell both sides of a story without lapsing into a convoluted narrative or a pedantic treatment. It can be done if care is taken to learn well both points of view. To discuss with sympathy the opinions of peoples who were enemies takes careful planning.

A particularly sensitive matter is defeat and conquest. A great many of our areas relate to military affairs, and the Indian wars make up no small part of this aspect of history. Development of programs that can be attractive to Indian visitors on such subjects is a very real challenge. Where the other participants were ancestral to modern minority peoples, such as Black buffalo soldiers or Hispanic frontiersmen, or where inter-tribal fighting is an important part of the story, such as warfare between Pueblo peoples and Apaches, the temptation to depict one side in heroic terms by showing the other as evil must be resisted.

## Cultural Beliefs

Seldom do cultures engage in activities which they consider improper. Their reasons for doing things may not be acceptable within the worldview of our own culture today, but they had justification that made what they did right in terms of their own beliefs. It is one of the great tragedies of human history that the beliefs of one group have so often led them to treat members of other groups as less than fully human. It does not help to place blame on the descendents of peoples who, when they found that their beliefs conflicted with the rights of outsiders, gave precedence to their beliefs. We do need to recognize the injustices of the past in order to avoid their recurrence, but must avoid doing so in ways that create new injustices.

When describing the lifeways of other times and other peoples, we should also be alert to customs which, while not necessarily involved in historic conflicts, would appear repugnant, immoral, or ludicrous to a modern audience. Again, such customs were, and sometimes still are, supported by beliefs of great importance to those who practiced, or practice, them and sometimes were significant in the success, or even the survival, of the culture. The amount of information necessary to make some such customs comprehensible to an Anglo-American or Hispanic audience may be far more than is at all possible in talks, audiovisual programs, self-guiding trails or similar media. Some may be so difficult to handle well that even books on the subject are not fully adequate.

Too often the motivation of visitors in taking some interest in other cultures, while ostensibly to achieve greater understanding of others, is really to find validation for the superiority of their own cultures. This is not ethically wrong, for each individual needs reasons and moral support to adhere to the standards that society provides, except insofar as it results in fostering a derogatory opinion of other peoples.

## Cultural Relativity

The best approach to such problems is in the use of cultural relativism. Cultural relativism is a much maligned and misunderstood concept. It most emphatically is *not* a type of romanticism that supports the idea that any custom is inherently good and right. Cultural relativity is the view that the customs practiced and values held by any culture are acceptable within the context of *that* culture. It gives us a way of viewing the ways of other peoples without the necessity of passing moral judgment, and thus of understanding the real reasons that their ways exist. For us to accept the fact that it is customary, functional and proper in some cultures for some persons to have more than one spouse does not necessarily mean that we advocate the custom for all cultures.

Cultural relativity is a difficult concept to communicate in a short, entertaining presentation. For that reason, it is perhaps best to omit consideration of certain customs in most interpretive programs, leaving them for the more detailed consideration possible in publications. This is particularly true for subjects such as human sacrifice, cannibalism, and the like. This may sound like a cop-out, but to purposely raise questions about subjects which cannot be dealt with adequately can be irresponsible.

These subjects cannot be avoided entirely, however, and members of an audience will ask about them from time to time. How their questions are handled must depend largely on the situation and the attitudes of the questioner. Where a real interest is indicated (rather than merely a desire to malign a different people), a well prepared interpreter can provide some answers and help guide the visitor to sources of more complete information.

An important point to remember is that we are not our ancestors, nor are the descendents of any other past society the same as their ancestors. No one wants to be held responsible for all things done by all of their relatives, even those living today. Cultures change and the people who carry those cultures are not only different in their ways, but over a period of time they are entirely different people.

Those of us with some background in anthropology may comprehend how and why race, language, and culture are independent variables, but it takes real skill to give visitors some insight into this fact. It is also important to keep in mind that a member of a society can say things about his or her own people that would cause resentment if said by an outsider. Learn to recognize "insider" jokes and comments and do not repeat them just because you heard them from an Indian.

## Be Informed

Above all, a good interpreter knows the subject matter very, very well. Simple, and even seemingly innocuous errors of fact can undermine a program. Constant questioning of the data, persistent reading of the written sources, careful checking of doubtful points and serious consideration of all areas of disagreement between authorities are essential. Even with a good knowledge of the history and culture of a tribe for the period to be described, an interpreter is not really well prepared until he or she also has an understanding of the tribe as it exists today.

Interpretation begins long before the presentation of programs to the public. The attitudes and views that will prevent interpretive efforts from including pejorative materials need to be present among those doing early studies and planning, in many cases even before a park exists. Preliminary studies of proposed parks frequently set directions which are difficult to change. General management plans and interpretive prospectuses wield a still stronger influence. Unless participants in these efforts maintain a high degree of awareness of the cultural and social issues inherent in the park story, it is all too easy for phrases to appear that can direct a park staff and future interpretive planners into ways of thinking that will produce insensitive usages later on.

There are several reasons for investing the effort that the above comments would imply in our interpretation of Indian-related subjects. First is the issue of accuracy. Good interpretation is factual. An ethnocentric presentation is incomplete and lacks important dimensions of the story, thus distorting the truth. Second is the need to attract audiences, and audiences that are representative of all our people, not just those who are members of the ethnic majority. Finally, however, is the matter of being true to the higher ideals of our own culture, the ideals of fairness, equality, tolerance, the rights of the individual, respect for diversity and the ultimate creation of a fully successful plural society. We have, I believe, made as much progress in achieving these ideals as any nation in the world, but we have certainly not yet reached the goals they promise. Perhaps they cannot be fully attained, but they are worth striving for, for they are probably the most important goals that the human species can have for ensuring its survival.

*David M. Brugge is Regional Curator in the Southwest Regional Office, National Park Service, Santa Fe, New Mexico.*

# Cultural Landscapes: An Emerging Concern for Resource Management

*by Robert Z. Melnick*

*Diane Steinbreuck*

**An important management question for cultural landscapes is the continuing development and alteration of traditional uses. This example of ranching is from the Buffalo National River.**

We all share a recognition and appreciation of great natural wonders of the American landscape. We marvel at and easily understand the places of scenic beauty or scientific value. For cultural resource managers, the traditional areas of concern have been history, anthropology and archeology, and historic architecture. We have built our expertise and learned our 'trade' using these disciplines and places to develop policy, guidelines, and specific practices. It is only recently, however, that our attention has been focused on another type of resource: the cultural landscape. While the concept of the cultural landscape is not new, especially to geographers, the emphasis on increased evaluation and management techniques represents a growing trend in cultural resource management, both in and out of the National Park Service.

It might be said that we are witnessing a metamorphosis of the preservation movement from a 'single-issue' concern to a multi-dimensional expression of caring for the world around us. This 'expression of caring' is a reflection of both fear and hope for our natural and national treasures. To a certain extent increased activity in all facets of preservation, and especially in cultural landscape preservation, is a response to new threats to those resources, as well as new understandings of the ways in which both natural and cultural resources are vital to our biological and human existence.

## What Are Cultural Landscapes?

Cultural landscapes, whether we find them inside or outside of or not in National Parks, are best described as ''nearly everything that we can see when we go outdoors'' (See Who Can You Turn To?-Cultural Landscapes #1). According to this definition, cultural landscapes encompass all that has been altered by humans. Another way of looking at this is to say ''that all human landscape has cultural meaning'' (See Who Can You Turn To?-Cultural Landscapes #2). Taken from this point of view, it may be possible to ascribe significance to all that is around us. Unfortunately, the determination of significance also implies that a landscape (or a site or building) is, in one way or another, special when compared to its cultural peers. If we view everything as part of the cultural landscape, then it becomes implausible, in a practical sense, to designate anything as special. This broad definition may work in an absolute sense but is insufficient in a discussion of management demands.

What, then, is a cultural landscape? And how, more specifically, does this concept apply to National Parks? These are not easy questions to answer. Just as our concepts of 'preservation' and 'historic site' have changed over the years (for the better, it might be noted) so, too, is our understanding of cultural landscape undergoing evaluation and evolution. The ideas and concepts presented here reflect current thinking on the subject with the express expectation that they will change and be refined and altered with time and experience.

The National Park Service manages a variety of landscape types. We are most familiar with those which represent the original inspiration for the setting aside of these great reserves over 100 years ago: the Yosemites, Yellowstones, and Grand Canyons of the system. The Park Service, however, has responsibility for another type of landscape. These landscapes deserve the designation of cultural landscapes. They are areas of farming, mining, ranching and fishing which have been settled, used, altered and changed for many years, through many generations.

Often, but not always, the processes of landscape control have been passed from parent to child and then to grandchild. These processes, be they fence-building, seed-planting, cattle-grazing or boat-building, have been consistently altered and changed over time. What is most important to these landscapes, however, is the continuity of use, both in terms of human input and type of use.

From another perspective, we must recognize that these landscapes represent the real, physical, tangible legacy of one generation passed down to another generation. Therefore, they are significant reminders of the past. They are reflections of the common, everyday history of the country. Like historic structures, not every cultural landscape is equally significant, or even of equal importance to a local area or cultural group. The concept of the cultural landscape, however, places greater emphasis on everyday places than on monuments, and also stresses greater interest in common people than on local or national 'heroes.'

## 'Reading' the Cultural Landscape

In order to understand cultural landscapes, we must learn to 'read' and appreciate the landscape, as well as the culture which caused that landscape to develop as it has. While we normally think of 'cultural group' in terms of people who are clearly distinct from the 'mainstream' of American life, a cultural landscape may be defined by any group of people living and working within a given locale. Thus, we have cultural landscapes in, for example, the Delaware Water Gap, along the Buffalo National River in Arkansas and at Ebey's Landing on Whidbey Island in the Puget Sound.

Reading the cultural landscape is not an easy task. We are somewhat used to looking at buildings 'dripping' with history. We understand the importance of these structures. Landscapes, on the other hand, are dynamic and changing. This change is a critical aspect of the cultural landscape, and therefore, any preservation management strategy must allow for and even encourage change to continue. The issue may better be defined as the 'management of change,' rather than the halting of change. In order to manage a cultural landscape within a National Park, it is first necessary to identify the landscape, then to understand and evaluate it. Identification may be superficially obvious or it may require extensive research. As part of this searching, the various components, attributes and qualities of the cultural landscape should also be identified (See Who Can You Turn To?-Cultural Landscapes # 3). Through the process of identification it will be possible to further understand not only the landscape but also the direct and indirect influences of the cultural group which has occupied and informed that landscape. A study of this type requires the skills of many different disciplines, including, but not necessarily limited to: landscape architects, archeologists, cultural anthropologists, cultural geographers, and historic architects. Each of these will bring to the study a particular viewpoint and way of understanding what may appear to be common knowledge.

## NPS Study

Recently, the National Park Service, through its Division of Historic Architecture, began a study of cultural landscapes in National Parks. The purpose of this project is to develop strategies and guidelines for identifying, evaluating and managing cultural landscapes within the Parks. Additionally, this project will provide park managers, landscape architects, cultural anthropologists and other professionals with specific tools for understanding these landscapes, and, more importantly, incorporating their management into the overall management guidelines of the National Park Service.

The study is founded on the understanding that a significant part of our common history has the potential to be lost or accidently destroyed due to lack of knowledge or lack of clear management guidelines. Of the 333 units in the NPS almost two-thirds use some sort of historical designation. Within these parks, and potentially within others as well, there are significant layers of history represented in the landscape.

## National Trust's Rural Project

While the National Park Service has been directly involved in an attempt to address issues of the cultural landscape through this study, it has not been alone. During the past few years the National Trust for Historic Preservation, through its Rural Project, has chosen to tackle similar issues from a very different perspective. This project, due to the very nature of the Trust, has instead focused on the joining together of private and

Robert Z. Melnick

An old swing-bring along the Buffalo National River (AR) is an important and significant link to a historic farmstead.

public groups in an attempt to save large portions of our agricultural landscape. These efforts have explored legal, political and social tools for landscape preservation, and have employed the expertise of policy planners, landscape architects, lawyers and community organizers. Although the constraints and opportunities inherent in the Rural Project of the National Trust may be radically different from those within the Park Service, the type of landscape being addressed is similar, and thus there is, or can be, a direct link between these efforts.

## Private Sector Involvement

Similarly, there is an increasing amount of work being done within the private sector in cultural and historic landscape preservation. Perhaps the best recent example is that of the Amana Colonies in Iowa. This study, and planning and design work, is being done by Land Community Associates of Charlottesville, Virginia. This interdisciplinary group has developed a community advocacy and action program for the Amanas, as well as the more traditional design and planning services. Here, again, issues are directly related to a cultural landscape which exhibits clear evidence of a continuity of use and specifically unique patterns of landscape control and alteration. In this example, as in others, the cultural group which has imposed its values and forms upon the landscape is clearly defined and understood. There is the joining together of human influences and landscape characteristics to create a distinct landscape type.

For the resource manager and planner, the issues related to cultural landscapes are complex. One must ask whether or not the indigenous population is still intact; whether there is a desire or need to expand that continuity of land use; and what responsibilities are incumbent upon the manager in a National Park. Since the landscape is dynamic and therefore in a constant state of change, we must question the advisability of attempting, in any way, to stop that process through strict preservation policies. On the other hand, if the landscape is truly significant it may not be desirable to allow it to be lost through drastic change or outright destruction.

The intricacies of these issues are compounded by the other needs of the planning and management process, most notably the requirements for visitor use and natural resource planning. Both of these will undoubtedly have an impact upon developing management strategies for cultural landscapes, as will the long-term goals of the Park Service with regard to policy guidelines in historic areas (See Who Can You Turn To?-Cultural Landscapes # 4). Additionally, as this type of concern broadens and develops, currently unrecognized issues and needs are sure to surface. It will be incumbent upon the manager to creatively respond to the needs of the resource, of the visitor, and of the public in general. While this may not be an easy task, it is a necessary one if we are to understand and save significant cultural landscapes of this country's past, present and future.

*Robert Z. Melnick is Associate Professor of Landscape Architecture at the University of Oregon.*

Robert Z. Melnick

The enclosure of space for cultural uses may be an important indicator of land—ownership patterns, as well as of the values of local residents.

# Administrative History as a Management Tool

*by Barry Mackintosh*

The National Park Service administrative history program seeks to document and make available to park and program managers significant information on their parks and programs. With many of our national parklands originating in the last century, and with Servicewide programs dating from the establishment of the bureau in 1917, the activities that concern the Service today commonly have antecedents well beyond the memories of those now responsible for them. Today's personnel need to know what has been tried in the past if they are to avoid repeating past mistakes and profit fully from past successes.

The program focuses on administrative histories of individual parks, for parks are our basic management units and reason for being. About one-third of the 333 areas of the National Park System have park histories, although many require expansion or updating. A dozen more are now underway, including ones on Chickamauga and Chattanooga National Military Park (GA-TN), the first battlefield park, and Cuyahoga Valley National Recreation Area (OH), a relatively recent addition. A "model" history of Assateague Island National Seashore (MD-VA) has been prepared by the bureau historian and circulated to all parks to encourage and guide others able to undertake similar projects.

A second category of administrative history addresses Service programs and activities transcending individual parks. A study of the growth of the Service and System during the turbulent, precedent-setting decade of the 1930s has just been completed; and a two-year project has begun on NPS involvement in the Alaska National Interest Lands Conservation Act of 1980, which greatly extended the bureau's role in Alaska. The bureau historian has done a paper on the policy and practice of charging park entrance and user fees—a subject of much current interest amid present budgetary constraints. Like the Assateague history, this will be circulated as an example for others of its kind.

*National Park Service*

**Built by Spain in 1672-1695, Castillo de San Marcos at St. Augustine became a possession of the United States when Florida was ceded in 1821. It then became a military prison.**

## Park History Outline

A typical park history begins by exploring the movement leading to establishment of the park. Who was involved? What were their motives? What political bargains were struck or compromises made? The legislative background as revealed in congressional bills, hearings, reports, and floor debate is especially significant in identifying issues and objectives. Following establishment, attention turns to park development, administration, and use. Land acquisition, master planning, construction of physical facilities, natural and cultural resources management, interpretation, visitor use—these are among the topics that may be addressed in greater or lesser detail, depending on the nature of the area. Copies of key legislation, cooperative agreements, personnel rosters, and other pertinent data are appended.

## Interesting Discoveries

Almost inevitably, administrative history sheds new light on old parks and programs. A North Carolina congressman recently wrote in behalf of a constituent who recalled and sought commemoration of a "national soaring site" for gliders designated somewhere along the Blue Ridge in the 1930s. No one in any of our Appalachian parks was aware of it, until a check in the

**Park Ranger examines the boiler of sidewheel steamer *Cumberland* at Isle Royale National Park.**

Shenandoah National Park history revealed its existence there at Big Meadows. The site will now be suitably recognized.

At Antietam National Battlefield, Maryland, the Victorian gatehouse lodge at the national cemetery has long been admired for its picturesque architecture, but no one suspected that it was more than locally significant. Research for an administrative history of the national battlefield and cemetery has just disclosed that its designer was Paul J. Pelz, who later achieved national prominence as architect of the Library of Congress. This discovery adds a new dimension of interest to the little Antietam structure and underlines the importance of its preservation.

Legislation enacted in 1889 to protect the prehistoric Casa Grande ruin in Arizona has traditionally been cited as the first deliberate action of the Federal Government for historic preservation. A recent Park Service report on the Castillo de San Marcos in Saint Augustine, Florida, made reference to a congressional appropriation five years earlier to restore that Spanish colonial fortification, now a national monument; but not until the report was reviewed in an administrative history context was the pioneering nature and significance of that action recognized.

## Primary Benefits

Such discoveries, whatever their academic and interpretive value, do not illustrate the primary benefits of administrative history, however. Above all, park and program histories are designed to be general orientation tools for new personnel and reference tools for those of all experience levels. As in many organizations, a person may be transferred to a park superintendency or other staff position with little or no knowledge of that park or its environs. The time required for him or her to acquire such knowledge can be greatly reduced by the availability of a good park history. As the person continues on the job, the history will continue as a ready reference—a reminder of how various park operations have evolved and have been managed over time.

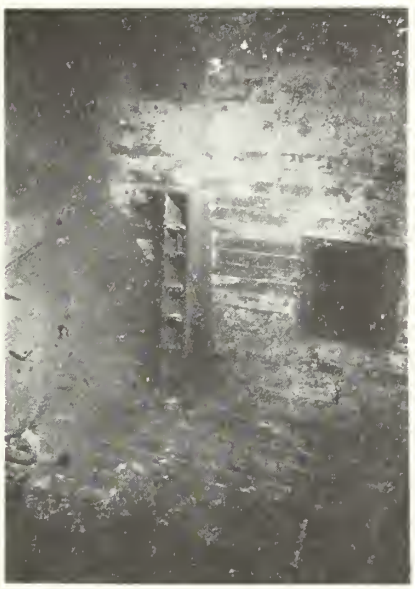
Possession and use of an administrative history affords no guarantee that a manager will make the right decisions—only more informed decisions. If you don't know where you've come from, it's harder to know and get where you're going. For a sense of direction, it helps to be able to look back (even when you don't want to go back). Administrative history makes this possible.

*Barry Mackintosh is a Bureau Historian with the National Park Service.*

# Managing Shipwrecks in Parks and Preserves

*by Daniel J. Lenihan*

*Daniel J. Lenihan*



*Daniel J. Lenihan*

**Silt covered interior of the purser's office of the *America* at Isle Royale National Park. The deep cold water has created an environment conducive to extraordinary preservation.**

The management of shipwrecks and other submerged cultural resources in parks and marine preserves has presented a unique challenge to federal and state land managing agencies. With the tremendous increase in sport diving activities over the past decade, the issue has become a critical one for many park superintendents and regional and state archeological offices.

The National Park System alone has at least 24 areas with historically significant shipwrecks, and in some cases they are dealing with wreck populations in the hundreds. What makes the issue a particularly challenging one to deal with is that in many cases the legislation for the parks, seashore and marine preserves in question was enacted at a time when underwater archeological concerns were about on a par with concerns over flying saucers. Consequently, park management plans often reflect this lack of consideration for underwater archeological resources, and the area superintendent is being confronted increasingly with problems that he or she never was prepared to cope with.

Fortunately many seashore, park and marine preserve superintendents have decided to meet the issue head on, even if it deals with an area of responsibility that they rarely would be held accountable for, since underwater resources are still out of sight - out of mind in most land management agencies.

Just how much of a concern should shipwrecks be to agencies with submerged lands jurisdiction? If one gauges resource management priorities on the extent, significance and fragility of the resources in question, plus the imminent peril they may be in from natural and social impacts, then shipwrecks would rank quite high. If gauged on the basis of percentage of park visitors that experience direct contact and enjoyment of the resource, then it would have to be ranged from low to middling.

## Early Spanish Shipwrecks

Shipwreck resources in the U.S. National Park System include the entire spectrum of types and classes that could be found under other federal and state jurisdictions. Some of the earliest exploratory and colonizing vessels in the New World came to grief on seashores now under National Park Service control. Portions of a Spanish Fleet that went down in 1554 are believed to be located at Padre Island National Seashore (TX). One of the vessels has already been excavated in the contiguous state waters by the Texas Antiquities Commission. The San Agustin, which might be the oldest shipwreck on the West Coast, is probably located at Point Reyes National Seashore (CA) where Service archeologists have been conducting underwater survey operations during the past year.

Another Service underwater archeological team has been carrying out inventory efforts at Fort Jefferson National Monument and Biscayne National Park (FL) which are, among many other wrecks, the suspected resting places of shipwrecks associated with storm destruction of Spanish Flotas in 1622, 1715 and 1733. These earlier Spanish shipwrecks present a special problem to submerged sites management programs since they are, unfortunately, associated with treasure in many people's minds.

Richard Frear

National Park Service dive team "ground truthing" remote sensing anomalies at Point Reyes National Seashore.

Although there seems to be little problem with understanding the nature of collective patrimony and respect for our historical maritime heritage on land sites, this preservation concept deteriorates at the first hint of the possibility of riches being found underwater. The wholesale destruction of historic buildings by treasure hunters hunting for gold in a terrestrial context would be seen as a criminal activity, while it is often lauded by the courts and general public when done in an underwater context. A frustrated official from the Ministry of Culture in Spain once mentioned to this author that our lack of protection for shipwrecks in this country is an affront to many nations since we are custodians of an international heritage, not just our own.

## Other Shipwreck Resources

The tangled web of controversy over early Spanish vessels is only a small part of the shipwreck picture in U.S. parks and preserves. We also have responsibility for the protection and management of many hundreds of other shipwrecks that represent just about every phase in our national maritime development. The wooden schooners that became a trademark of later colonial history in the U.S., the clipper ships that for a short, but brilliant period dominated trade to the Orient and the full range of vessels that represented the dynamic, though often tenuous and reluctant, era of transition from sail to steam. Included are not only vessels engaged in long distance trade but ships of war, coastal fishing vessels and whaling ships.

These all constitute somewhat different management entities and the difference becomes more pronounced when the factors of condition and location are also considered. A broken-up 18th century wooden square rigger lying under 15 feet of sediment in park waters in Florida may be a very significant archeological resource, but it presents a totally different set of problems to the resource manager than a turn of the century steam driven iron vessel that is still totally intact in the deep frigid waters of a Great Lakes park.

Both can be very important in a historical sense. They are the material remains of a former age that are capable of providing answers to questions about our past that are not obtainable from written records. The distributed wooden remains may be carefully excavated and interpreted by trained archeologists and the Great Lakes steamer can be documented and interpreted in place. Our tendency to overlook our recent history has created a situation in which we have already lost track of many of the stages of development that we went through in the highly charged era of adaptation to steam propulsion and the use of iron and steel in hull construction. But banking these sites for future research is only one aspect of the mandate most park managers have.

## Visitor Use and Interpretation

After a degree of protection and conservation is assured, the question of visitor use must be the next addressed by the manager. This has become no small issue over the last several years since the sport diving population in the U.S. has increased at the rate of well over 100,000 a year. Besides the question of direct visitation by divers there is also a need to work the shipwrecks into the general park interpretive theme for non-divers. One can hardly justify interpreting the cultural aspects of a marine park without considering the role that ships played in the human history of the area, especially when many vestiges of these same ships are found in the form of wrecks within the parks' jurisdiction. The wooden wreckage under sediment may never be visited by a sport diver but the intact iron vessel may provide a dramatic attraction to visiting divers.

## Safety Concerns

As with any other historical site that presents an attraction in a park to visitors, the manager must be concerned not only with

the potential impact of the visitor on the resource but the possible safety and health considerations. Divers have drowned on shipwrecks in national, state and provincial parks both in the United States and in Canada. Wreck diving can range from a very benign and reasonable activity to an extremely hazardous undertaking depending on training of the diver, depth, temperature of the water and degree of penetration possible of remaining structure of the vessel.

At Point Reyes National Seashore (CA) shipwreck survey activities have resulted in the pinpointing of not only magnetic anomalies related to earlier wooden vessels buried under sediment, but also the disarray of remains of 1920's and 30's steam freighters made of steel. These wrecks are located in high surge zones and shark infested waters. Indications are that some have already been visited by sport divers and the park is now cognizant of not only a resource protection issue but a visitor safety problem that it must monitor closely.

It is worth noting that in the interest of accomplishing a park management objective, i.e., inventory of submerged resources, this area, with the help of their regional archeologist, was able to harness a great deal of cooperation from other agencies and assistance from the private sector. The National Oceanographic and Atmospheric Administration, U.S. Coast Guard, State of California and Motorola Corporation, along with volunteer sport divers, provided invaluable assistance to the National Park Service in accomplishing this survey. The resulting cost to the taxpayer was a fraction of what it could have been without their help.

## Isle Royale NP Program

The model program being developed at Isle Royale National Park in Lake Superior (MI) is especially worth examining. This particular park has shipwrecks as only one aspect of a resource base that includes an extensive wilderness area with its own set of natural resource management problems and a whole series of land based historical sites that are already the focus of a developed interpretive program on the island's maritime history. Like other federal and state parks and preserves, it does not have enough staff, money and patience for "new management problems." Perhaps the key to the success of the active program at Isle Royale is that the area management perceives the issue as not a new one, but an old one that is just newly being raised into the consciousness of the general public and the National Park Service.

The decision was made to approach the shipwreck population as an asset to the resource base of the park and not as just another set of vexing problems. A "reach out" program to the charter boats that took divers to the island was started, park rangers began exerting a visible presence at wreck sites, not just as topside observers but as divers themselves. They made it plain to visiting divers that they were welcome to enjoy these underwater sites much like they would any historic sites on land, but with the understanding that they were in a National Park—take only pictures and leave only finprints.

A Service underwater archeological team was called in to research and professionally inventory the wrecks. The results of that research, instead of being neatly filed away, are being converted into interpretive brochures including an underwater trail guide for divers and topside brochures for non-diving visitors. The Superintendent is even considering encouragement of a glass bottom boat concession that would allow visitors to enjoy the eerie majesty of one large wreck in shallow water without getting their feet wet. Park rangers on the area staff are trained to deal with diving emergencies and one has even become a certified recompression chamber operator so that the park can carry accident management right through the final stages, even in the severe case of air embolism or decompression sickness.

There were mistakes made in the past and more will be made in the future at Isle Royale but it stands as an excellent example of how a proactive management approach can provide demonstrable benefits over a reactive one.

## Conclusion

If there is any moral to this story it is in the last paragraph. An easy way to react to the issue of submerged sites management is to ignore it and leave it to a future manager to react to the problem once it is well out of hand. Experience of just the last decade has made it apparent that we must adopt a three dimensional view of marine, lacustrine and riverine parks. We are managing the land, the water's surface and beneath the water's surface. All these elements compose the sphere of influence of a park and none may be ignored without reaping a harvest of attrition. No single class of cultural resources in the national or state park system is undergoing the same pressures as shipwrecks from commercial and amateur collectors. We can only hope that an enlightened approach to managing these priceless windows to the past in the protected waters of parks and preserves will ensure that the issue isn't a matter of history itself in another decade.

*Daniel J. Lenihan is Chief of the Submerged Cultural Resources Unit, National Park Service, Santa Fe, NM.*

# Acid Rain: The Unknown Ingredient

*by Mary V. Maruca*

The most powerful enemy is an unknown enemy. Today, an unknown enemy is stalking international borders. Neither natural nor man-made, but an unnatural conglomerate of both, that enemy is acid rain. TIME magazine calls it "a particularly modern, post-industrial form of ruination, a blight as widespread and careless of its victims. . . as the winds that disperse it." But what exactly is this intruder? What effects can it have on our way of life? We just don't know.

Johnny Hart's cartoon strip, "B.C." (July 10, 1982, *The Washington Post*), capsulizes the acid rain issue.

Such is the issue of acid rain: in the replacement of the irreplaceable, who accepts responsibility? Most of us philosophically recognize that decay is inevitable. But when decay threatens a national monument, a forest, or a way of life, the issue comes home with increased legitimacy. We find ourselves in the interesting position of trying to preserve what by its very nature is constantly changing.

Administrators of natural and cultural resources respond like doctors to such complex situations. When "disease" strikes, they cure what they can. In the case of acid rain, none of us knows how much this and similar industrial by-products reduce an expected life span. For example, how long will a particular lake yield trout in the absence of acid build-up? How long will a national monument stand, minus current levels of air pollution? Does pollution shorten the life span of a structure by as much as 10, 50, 100, or 100+ years? And if so, are we as a nation willing to pay that price for the loss of our cultural and natural resources?

Some regions have already said no to pollution. Canada and the United States are each confronting industrial pollution drifting across from both sides of their shared border. In the U.S., several east coast states are suing midwest industrial states for damage to freshwater lakes and streams. On the biological front, evidence of such deterioration is well researched and demonstrable. Increased acidity in lake water has reduced large numbers of the fish population. However, the correlation between acid rain and cultural resources deterioration has not been as well documented.

In 1661, John Evelyn, a public spirited Londoner, described the effects of air pollution:

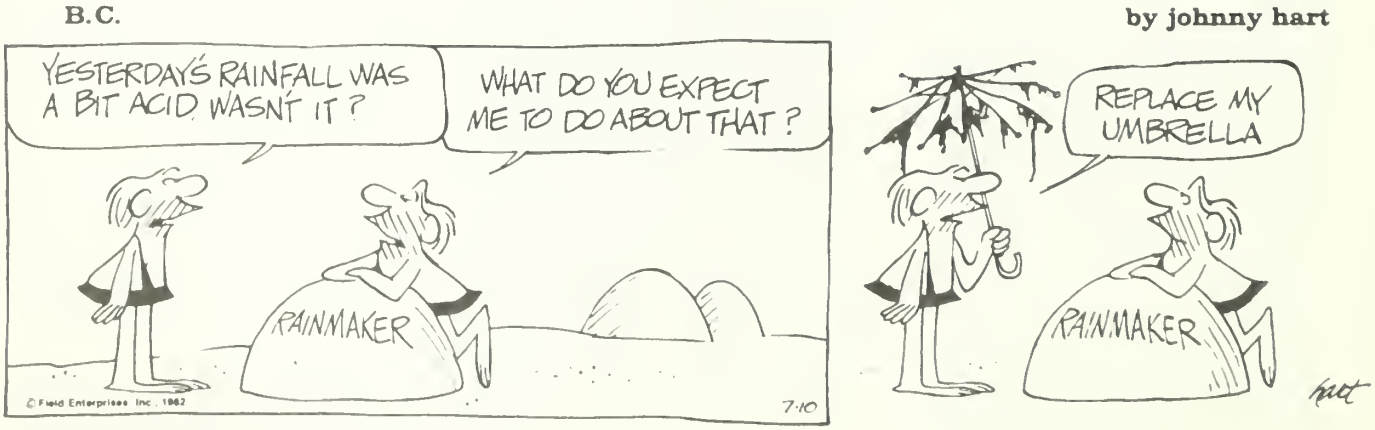
> This is the pernicious Smoake which sullyes all her Glory, superinducing a sooty Crust or Fur upon all that it lights, spoyling the moveables, tarnishing the Plate, Gildings and Furniture, and corroding the very Iron-bars and hardest Stones with these piercing and acrimonious Spirits which accompanying its Sulphure; and executing more in one year, than exposed to the pur *Aer* of the Country, it could effect in some hundreds.

Today, scientists can add little more to his description. While materials deterioration and atmospheric conditions have been studied intensively, rarely have the two intersected. Now, material scientists are attempting to factor pollution into the deterioration equation.

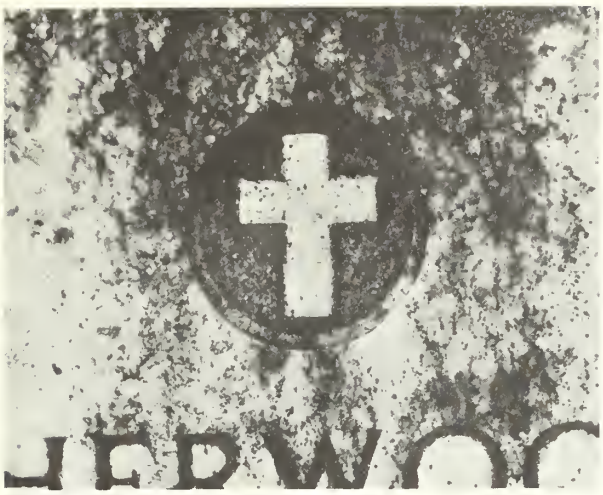
## Cooperative Endeavors

The business of determining the correlation between air pollution and cultural deterioration has been assigned to the Materials Effects group within the Interagency Task Force on Acid Precipitation, mandated under the 1980 Synfuels Bill. Over the next 6-10 years, twelve Federal agencies will cooperate in various research endeavors to estimate the impact of acid rain on aquatic, terrestrial and cultural material.

In the National Park Service, the effect of acid rain on watersheds and forests will be handled by the Air and Water Quality Division, while the Park Historic Architecture Division will work toward a determination of pollution impact on man-made resources. One half the Interagency Materials Effects Acid Rain budget has been designated to test the materials of our cultural resources (for example, stone and certain statuary metals), and the other half to test the materials of common construction such as concrete, aluminum, paint, and steel. The program includes monitoring materials deterioration side by




*By permission of Johnny Hart and Field Enterprises, Inc.*



K. Fung

K. Fung

Tombstones from Andersonville National Historic Site exhibit various kinds of marble deterioration.

side with air quality at several cultural park sites across the U.S. The intent is to measure a cause and effect link.

The Acid Rain legislation mandates scientific investigation for the purpose of policy making. How much damage acid rain does (i.e., the increased rate of deterioration) is a burning question for various interest groups. The Environmental Protection Agency wants to know in order to judge the appropriate level of emission controls. The utility companies want to know in order to judge the kind of concessions they will have to make. The Park Service wants to know in order to determine how to manage and preserve the affected lands and structures.

## Causes of Deterioration

Determining the causes of deterioration requires careful analysis of all atmosphere and ground related influences, many of which are not acid rain related.

Stone can deteriorate in several ways. It can dissolve or crack and crumble, the first a chemical and the second a mechanical process. In stone, a statue's staying power depends on its homogeneity, porosity, and composition. For example, decorative marble containing various multi-colored minerals of different wear resistance may disfigure sooner than other stones. Each mineral responds in its own particular manner to daily and seasonal temperature cycles. When a stone lacks homogeneity, these differing responses create "stress" areas which increase in conjunction with the number of mineral veins present. This mechanical deterioration occurs with or without acid rain.

Crumbling can also be increased by salts trapped in the stone which expand and push the material apart. Such impurities come from any number of sources: quarry water, surrounding mortar, rising damp, road salting, or acid rain. Residual salts may form in stone once the quarry water evaporates. Similarly, salts can be absorbed from surrounding mortar and transported by "rising damp," the ground water that penetrates into the fabric of the building. The crumbling Egyptian Sphinx is one example of this kind of deterioration.

Acid rain, it appears, plays the greatest role in the chemical deterioration of stone. We know that the more acidic the precipitation, the greater the rate of dissolution—from 1-5 mm. per century as measured by tombstones, etc. This dissolution may not be as noticeable if all surfaces of a structure are exposed equally. But if certain portions of the structure are protected, the wear pattern turns out to be uneven. Though the greatest material loss may occur on evenly exposed areas, the greatest visible loss is found in protected areas. This leads experts to question the relative contribution of acid rain to material deterioration.

Some propose that acid by-products in gaseous form may register a more noticeable effect than wet, since only gases have access to such protected areas. Furthermore, they suggest rain tends to wash away some of the disfiguring residue in exposed areas. Dirty crusts on buildings do contain sulfate compounds, products of the reaction between sulfur and the stone itself. But to complicate the issue, sulfur profiles in cross sections of stone show the greatest concentrations beneath the surface crust. As yet, the way acid rain affects the process and increases the rate of deterioration is still open to debate.

As for the question raised earlier, "how do we replace the irreplacable," the answer is we don't—though we try to preserve and restore what we can. Should the moment arrive when the Sphinx or the Parthenon cease to exist, that moment will be tragic indeed, for it will claim a part of our history, our way of knowing ourselves. Industrialists and preservationists have compromised successfully in the past. Perhaps the time is coming when new compromises will be made, perhaps before all the umbrellas in town have to be replaced.

*Mary Maruca is a Writer-Editor with the National Park Service's Directorate of Cultural Resources.*

# The PMI—An Alternative to Crisis Maintenance

*by James Skelton*

*National Park Service*

Roof inspection at the Little Studio, Saint Gaudens NHS.

BRICK WALL

FREQUENCY TWICE ANNUALLY

SPECIAL INSTRUCTIONS NONE

INSPECTION GUIDELINES ARE THERE CRACKS, BULGES, OR SIGNS OF SETTLEMENT IN THE WALL?

ARE BRICK LOOSE OR IN DANGER OF FALLING? IS IMMEDIATE ACTION NEEDED TO INSURE PUBLIC SAFETY?

ARE BRICK DECAYED, ERODED, OR SPALLING? IS THE TROUBLE EXTENSIVE OR PATCHY? IF PATCHY, IS THE CAUSE LOCALIZED?

ARE VINES OR OTHER VEGETATION ATTACHED TO THE WALL?

ARE THERE SIGNS OF EFFLORESCENCE (WHITE POWDER DEPOSITS)?

IS THE WALL DIRTY, STAINED, OR HAVE GRAFFITI?

FEB 82 04211

Typical inspection brief from the Preservation Maintenance Inspection Guide.

Do we want to preserve our historic structures? One assumes we do. We should, since the preservation of our historic structures is absolutely vital if we are to pass our cultural heritage on to future generations. Furthermore, we should because it is the responsibility of the National Park Service (NPS) to manage America's most important cultural and natural resources.

Only in recent years has preservation maintenance begun to emerge from almost total obscurity to one of the most significant resource management responsibilities in the National Park Service. Unfortunately, this rapid rise in significance has not been followed by the development of techniques and data upon which cultural resource management decisions can be soundly based. Frequently, the results of inadequate techniques and data has been inefficiency, waste of resources, unwise or unnecessary expenditure of funds, and further deterioration of our historic structures.

Recognizing that preservation maintenance ultimately saves money and, more importantly, cultural resources, the NPS North Atlantic Region has developed a regional approach — the Preservation Maintenance Inspection System (PMI).

## What is the PMI?

The Preservation Maintenance Inspection System is a regional approach toward management of historic structures. It was developed by the North Atlantic Historic Preservation Center with technical assistance on the computerized portions provided by the Washington Office's Division of Park Historic Architecture.

The PMI is based on assumptions which the Region made regarding the preservation of its historic structures:

- The preservation of historic structures will be facilitated by the identification of problems at an early stage.
- The systematic recording of identified problems will assist park management in planning for immediate and future preservation needs—personnel, funding, special assistance.
- The systematic recording of identified park preservation needs will provide the Region with data upon which cultural resource management decisions can be soundly based.

## How it Came About

In the 1970s the parks throughout the National Park System were directed to prepare a document which would function as a guide for programming, housekeeping, and preservation maintenance of their historic sturctures.

The first of these historic resource management plans was prepared for the John Fitzgerald Kennedy National Historic Site (MA). This plan, a joint undertaking by the Park and the regional office, provided detailed maintenance information on the three principal cultural resources at the site—the grounds, house, and furnishings. Included in this document was detailed maintenance information such as:

- A description of the resource including a chronological history and a record of previous maintenance work. In addition, a brief discussion of resource significance and treatment was included.
- Preventive maintenance schedules which listed all items that required maintenance or inspection during a particular season of the year.

- A preventive maintenance guide which detailed the procedures to be followed for accomplishing the items in the preventive maintenance schedules.

The Kennedy historic resource management plan provided the types of detailed information that the Region believed was needed in order for the Park to conduct an effective preservation maintenance program. Ideally, the regional office would have liked to have had similar structure-specific maintenance plans prepared for all of its 740 historic structures. However, to accomplish this, considerable time and money would have been required—both of which the parks and the regional office did not have.

With the need for structure-specific maintenance plans recognized, the Region decided to develop a more economical and expedient approach. This approach, the Preservation Maintenance Inspection System, is a framework for the efficient preparation of preservation maintenance plans. This framework consists of two primary components:

- Computerized inspection scheduling.
- Preservation maintenance inspection guide.

## Computerized Inspection Scheduling

The basis of the computerized portion of the PMI is the structure or building inventory. This inventory is developed from data taken from measured drawings, technical reports, and on-site visits. From these sources architectural elements of the building are identified. Typical architectural elements inventoried are wood doors, brick masonry, plaster, painted wood, etc. Altogether over 300 typical architectural elements have been identified and are used as a basis for the inventory. To further define the inventory's architectural elements, each is identified within the structure through recording of specific information:

- Park organization code
- List of classified structures (LCS) number
- Elevation or room number and name
- Surface or system
- Quantity

In addition to the element identification, other information which may affect the frequency and type of maintenance required for preservation of the structure can also be collected. This information consists of identifying the use of the building, how extensively the structure is used, and whether the element is to be preserved or is a modern alteration.

Once the inventory for the structure has been completed and the information entered into the PMI data base, the computerized portion of the system can be implemented. Utilizing the inventory data as well as a preservation maintenance frequency cycle for each architectural element, structure-specific inspection schedules can be generated. These schedules are formatted for park use during their periodic inspections of historic structures. Problems identified during these inspections are noted on follow-up reports which track the progress on addressing the preservation maintenance needs. To facilitate this process, each report the park receives is formatted to record and accumulate programming data, and to serve as an input form for recording the next level of PMI information.

## What the Parks Receive

The computerized portion of the PMI is designed to provide the parks with structure-specific information regarding the preservation maintenance of their historic buildings. The primary vehicle for transferring this information from the computer to the parks is the Preservation Maintenance Inspection Schedule. This schedule is sent out to the parks four times each year—January, April, July, October. The schedule lists all elements requiring inspection or maintenance during the particular quarter of the year as well as all items which were previously identified as needing work and which have not been corrected.

The inspection schedule is formatted to facilitate its use by the parks. Printed on 8½ x 11-inch paper so as to be easily attached to a clipboard, the schedule lists one elevation or room per page and includes all items requiring inspection or maintenance on that elevation or in that particular room. To facilitate checking of these items, they are organized according to surface/systems — structural system, floor, walls, ceiling, roof, special items, plumbing, mechanical system, electrical system. Opposite each of these items are spaces which are to be checked regarding the condition of the item as well as space for noting any remarks the inspector might desire to make.

Once the inspector has checked all items, the schedules are returned to the Region. At the regional office all inspection items identified as needing maintenance attention are identified and recorded in the PMI computer data base. Once recorded, the computer prints for each building or structure the Inspection Problems Summary. This summary lists all items in the park which have been identified as needing preservation maintenance. To facilitate use of this report by park management, similar types of problems — carpentry, mechanical, etc. — are grouped together. This enables park management to easily determine types of expertise that may be needed to correct these problems. In addition, the report assists management in determining the amount of preservation maintenance work which is required to bring the structure up to a maintenance level.

NATIONAL PARK SERVICE
PRESERVATION MANAGEMENT INFORMATION SYSTEM
1983 WINTER INSPECTION SCHEDULE

PAGE 1055
12/17/82

SAINT GAUDENS NATIONAL HISTORIC SITE
LITTLE STUDIO
AREA 0007 NORTH ELEVATION

| | DESCRIPTION OF ITEM | WORK NEEDED | | | COMMENTS | REFER |
|---|---|---|---|---|---|---|
| | FOUNDATION | | | | | |
| 012S3E0007 AE03314P | CONCRETE WALLS | (X)NO | ( )YES | ( )URGENT | | 03314 |
| 012S3E0007 AE04111P | MORTAR JOINTS | ( )NO | (X)YES | ( )URGENT | NEEDS REPOINTING | 04111 |
| 012S3E0007 AE04443P | MARBLE SILL/COPING | ( )NO | (X)YES | ( )URGENT | | 04443 |
| | WALLS | | | | | |
| 012S3E0007 DE06212P | WOOD CORNICE | (X)NO | ( )YES | ( )URGENT | | 06212 |
| 012S3E0007 DE06441P | WOOD HANDRAIL | ( )NO | ( )YES | (X)URGENT | LOOSE -- SAFETY HAZARD | 06441 |
| 012S3E0007 DE07313P | WOOD SHINGLES | ( )NO | (X)YES | ( )URGENT | THREE MISSING IN NW CORNER | 07313 |
| 012S3E0007 DE07466P | WOOD CLAPBOARDS | ( )NO | (X)YES | ( )URGENT | SPLIT & LOOSE | 07466 |
| 012S3E0007 DE07468P | WOOD BOARD & BATTEN | (X)NO | ( )YES | ( )URGENT | | 07468 |
| 012S3E0007 DE07813P | WOOD FRAMED SKYLIGHT | (X)NO | ( )YES | ( )URGENT | | 07813 |
| 012S3E0007 DE08201P | WOOD DOOR FRAME | (X)NO | ( )YES | ( )URGENT | | 08201 |
| 012S3E0007 DE08212P | WOOD PANEL DOOR | (X)NO | ( )YES | ( )URGENT | | 08212 |
| 012S3E0007 DE08611P | WOOD FIXED WINDOW | (X)NO | ( )YES | ( )URGENT | | 08611 |
| 012S3E0007 DE08711P | DOOR HARDWARE | (X)NO | ( )YES | ( )URGENT | | 08711 |
| 012S3E0007 DE08811P | GLASS | ( )NO | (X)YES | ( )URGENT | PANE CRACKED | 08811 |
| 012S3E0007 DE09911P | PAINTED WALL | ( )NO | (X)YES | ( )URGENT | PAINT ALLIGATORING | 09911 |
| 012S3E0007 DE09914P | PAINTED TRIM | ( )NO | (X)YES | ( )URGENT | CORNICE NEEDS PAINTING | 09914 |
| | ROOF | | | | | |
| 012S3E0007 FE07610P | SHEET METAL ROOFING | ( )NO | ( )YES | (X)URGENT | LEAKING | 07610 |
| 012S3E0007 FE07631P | METAL GUTTER | ( )NO | ( )YES | (X)URGENT | NEEDS CLEANING | 07631 |
| 012S3E0007 FE07635P | METAL DOWNSPOUT | (X)NO | ( )YES | ( )URGENT | | 07635 |
| 012S3E0007 FE07813P | WOOD FRAMED SKYLIGHT | (X)NO | ( )YES | ( )URGENT | | 07813 |
| 012S3E0007 FE08811P | GLASS | (X)NO | ( )YES | ( )URGENT | | 08811 |
| 012S3E0007 FE09914P | PAINTED TRIM | (X)NO | ( )YES | ( )URGENT | | 09914 |

INSPECTED BY PAUL JONES
DATE 1/14/83

Completed Preservation Maintenance Inspection Schedule.

An added use of the Inspection Problems Summary is to record when preservation maintenance has been completed. Appropriate space is left on the summary printout so that the type of work done, the cost of the work, and other pertinent data can be noted. Recording this information provides park management with a history of repairs to the building as well as data on the costs involved with making particular types of repairs. Furthermore, this type of information can be extremely valuable in planning for future maintenance needs and expenditures. In addition to this information's usefulness to park management, the data is added by the Region to the PMI data base. This provides the Region with data on which trends and preservation planning can be based.

As preservation maintenance needs are identified, park management must plan for correcting the problem. To assist in planning for this work, the Project Formulation Report has been developed. Using data for the Inspection Problems Summary, the computer generates a report which lists all identified problems for a specific structure. This report is broken down on an exterior elevation or interior room basis. Under this breakdown is a list of all items which have been identified. To facilitate park use of the report it is formatted as a worksheet. The worksheet provides for developing cost estimates, funding sources, and priorities of projects.

After the park has completed this detailed project planning, the computer can utilize this information to produce a consolidated list of park preservation maintenance projects. This report provides a detailed summary of the preservation needs according to park priorities and packages of work.

## Preservation Maintenance Inspection Guide

The second component of the PMI is the Preservation Maintenance Inspection Guide. This guide is a reference document which is designed to be used in conjunction with the Preservation Maintenance Schedule. Like the computerized inspection schedules, the guides are approached in a manner that establishes a regional standard for the inspection of historic structures. In addition, the approach provides for an efficient and economical means of preparation.

In developing the guides, the goal was to produce a working document that could be revised as changes were made to the structure or as new preservation information became available. To facilitate revisions, a loose-leaf format was selected. This format allows the pages to be dated so they can be revised whenever necessary without reprinting the entire document.

The primary element of the guide, the preservation maintenance inspection information pages, are one-page briefs about particular architectural elements. These briefs, one for each of the 300 elements in the PMI inventory, provide element-specific inspection information such as:

- Recommended frequency of inspection
- Special instructions about safety considerations or inspection tools
- What to look for when inspecting the element

In addition, each information brief is dated and identified with a number which allows the item to be cross-referenced to the Preservation Maintenance Inspection Schedule.

Utilizing the inspection briefs, individual structure-specific guides can be prepared easily. Briefs corresponding to the elements identified in the particular structure's inventory are selected and incorporated into the guide. With the addition of structure-specific historical information regarding maintenance, floor plans, etc., a complete and comprehensive guide can be assembled.

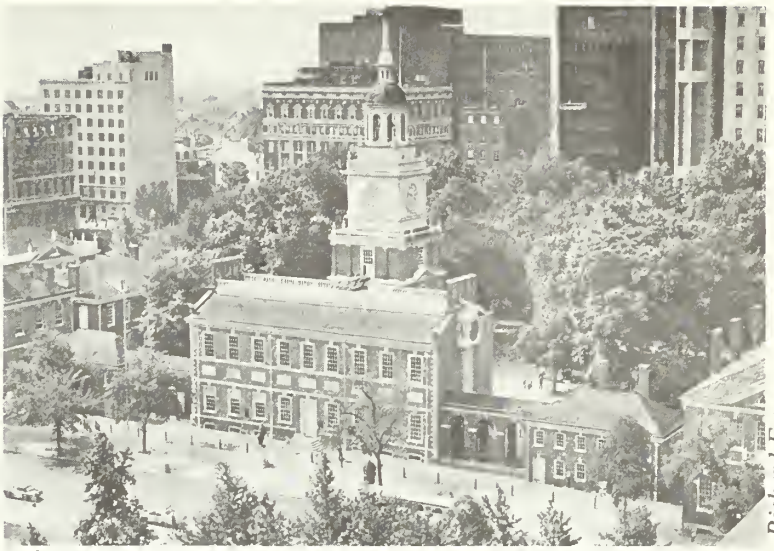
## Conclusion

Implemented in a variety of situations, the PMI has adapted to the complexity of the Theodore Roosevelt home at Sagamore Hill (NY) as well as the William Floyd Estate's simple wood shed. Likewise, the system has accommodated the needs of not only small historical sites but also large parks such as Gateway National Recreation Area (NY-NJ). Altogether, the PMI is operating at 54 structures in 14 North Atlantic Regional parks.

As a management tool, the PMI is beginning to be implemented in the Region. More importantly, park managers are realizing its value and are willing to allocate limited park resources toward the periodic preservation maintenance inspections.

Will this approach save money and cultural resources? The North Atlantic Region believes so and is actively supporting this alternative to crisis management—the PMI.

*James Skelton is Assistant Regional Historical Architect with the National Park Service's North Atlantic Region in Boston (MA).*



*Richard Frear*

**A cherished shrine of liberty, Independence Hall, Philadelphia, PA, saw the adoption of the Declaration of Independence and the Constitution of the United States.**

# Climatic Controls for Furnished Historic Buildings

*by Lawrence Klock*

Furnished historic buildings pose a dilemma to the National Park Service. The climatic requirements necessary for preserving a collection of objects often conflict with those climatic requirements necessary for preserving the building itself. Thus, the establishment of an environment which is safe for objects may result in damage to the building that houses the collection of objects. This situation can occur as a result of humidity levels required for objects that result in moisture condensation on relatively cold surfaces of the building fabric.

However, it is difficult to take precautions against this occurrence because of the inaccessibility of most of the affected areas. To alleviate this problem a heating, ventilating and air conditioning (HVAC) plan must be developed for the building encompassing the climatic requirements for protecting both the objects and the structure.

Studies have found that furniture, books, paintings and most typical furnishings are better preserved in a constant environment of about 65°F and 50% R.H. (relative humidity) in a climate such as that in Philadelphia. These levels have become the design and operations standard for many museums.

Relative humidity is a climatic parameter that is usually emphasized in establishing an HVAC environment that is least damaging to historic objects housed in a building. Moisture in the air and temperature determine what the relative humidity of a building is, and the relative humidity is affected by the thermal quality of a building and by visitation. All of these parameters must be addressed when determining the ideal HVAC plan for a building.

High moisture levels can affect the appearance and integrity of objects, especially wood, in a number of ways. The most common form of deterioration is due to the dimensional changes accompanying *variations* in the relative humidity of the atmosphere. High moisture levels may cause an abnormally high water absorption rate in materials, thus causing them to swell. This can lead to warping, splitting, joint separation, cracks, paint peeling and surface finish damage. In extreme cases, rot can occur.

*Richard Frear*

**Significant artifacts located in the Assembly Room of Independence Hall (PA) are the "Rising Sun" chair and the Syng silver ink stand located at the main desk.**

## Structural Damage

Structural damage of the building can occur from moisture condensing on cold exterior surfaces and migrating to material that is susceptible to damage. In wood, this can lead to rotting and structural deterioration. Not all of the effects are obvious to the observer, however. The location of moisture condensation is important. Moisture condensing on a cold exterior wall may be harmless if it does not come in contact with material that can be damaged and if this moisure is allowed to escape. But there are instances where the condensation of moisture on an exterior wall may come in contact with material that can be damaged. For instance, the butt end of joists and rafters that are set in brick, stone or masonry supports can be damaged. The moisture that condenses on cold brick, stone or masonry may migrate into wood and thus contribute to deterioration leading to structural damage.

The primary purpose of HVAC systems is to maintain the environmental conditions in a building in order to prevent damage to the objects and to the structure itself. In most cases, heating and cooling levels can easily be maintained through the simplicity of requirements and absence of constraints.

However, a furnished historic building has more rigid requirements and constraints that must be met to protect objects located in the building. Meeting these specific requirements and constraints places a burden on the HVAC system due to the narrow bandwidth of criteria, the usually poor thermal construction of the structure and the visitation requirements.

One criterion in particular that is required to be kept at a narrow bandwidth is relative humidity. This constraint is difficult to meet for a number of reasons. One is that the poor thermal quality of a building usually allows the condensation of moisture on cold exterior windows, walls and ceilings. This removes moisture from the air which the HVAC system has to replace.

## Moisture Levels

Moisture enters a building in a number of ways. In historic structures moisture is added to the building by visitors and through the humidity control system. The purpose of the humidity control system is to maintain moisture levels inside the building at a pre-determined point that is ideal for the objects in the building. This moisture level may or may not be harmful to the building itself.

Also, the humidity control systems are not precise and allow a swing from the optimum. When moisture is added to the space by visitors, the control system requires time to adjust to the preset value. If the HVAC system cannot return the relative humidity level to its preset level in sufficient time, objects can be damaged. The time span is important because fluctuating relative humidity levels are more harmful to objects than levels that vary from a preset level for long periods of time. Constant relative humidity levels are difficult to maintain.

Moisture problems occur more in the winter than in the summer. This is because moisture tends to condense on cold surfaces such as windows and exterior walls. The moisture on windows can be controlled by wiping, but exterior wall surfaces are not accessible and therefore cannot be wiped.

If there has not been a route to the outside established for this moisture to escape it will collect, and depending on where the collection spot is, the moisture may do damage. In the summer moisture is generally not a problem as air conditioning and ventilation remove much of the moisture in the building.

## Visitation Impacts

Visitation requirements affect humidity levels in two ways. One is the opening and closing of entrances and exits. This removes moisture by literally removing the air. Conditioned air escapes when a door is opened, and the escaping air is replaced by outside air of differing relative humidity. This is not much of a problem on days when the inside and outside conditions are nearly the same. However, on days when the difference between inside and outside conditions vary, the air exchanges can be problematic.

Secondly, visitors add moisture and heat to the air in a building. The amount of ventilation determines how great this effect will be. In general, the overall effect of a mass of visitors in a building that is not adequately ventilated is to raise the temperature and the relative humidity. All of these changes must be compensated for by the HVAC system. This places a tremendous burden on the HVAC system in a building such as Independence Hall.

## Independence Hall HVAC Plan

The National Park Service is presently funding a study to develop an HVAC plan for Independence Hall. This study will monitor for one year various environmental parameters in Independence Hall with an emphasis on relative humidity. This data will be utilized to determine the optimum HVAC design and operation that will satisfy the preservation requirements of the furnished objects and the building itself. Once this project is completed and the results evaluated, the procedures and recommendations made for Independence Hall will be utilized in studying other similar buildings within the National Park System.

*Lawrence Klock is a Mechanical Engineer and Assistant to the Chief of Maintenance at Independence National Historical Park in Philadelphia, Pennsylvania.*

# Park Boundaries

*by Jerry L. Rogers*

The National Park Service (NPS) has long been involved in the preservation of historic properties other than those it owns and operates. Designation of the first national historic landmark in 1937 stemmed from a dual recognition that America's cultural heritage was far greater than could be preserved through direct NPS operation, and that owners could successfully be encouraged to care for historic qualities of their properties. This idea was enlarged under the National Historic Preservation Act of 1966 by expanding the National Register of Historic Places to include properties of local significance, largely because a free-spending Federal Government had become a principal threat to historic properties.

Recognizing that the new challenge would require unprecedented outreach beyond its own ranks, the NPS made league with States, local governments, and the private sector, and also began the slow work of reforming other Federal agencies. At first the partnership was small and tenuous, albeit far-flung: 55 newly-appointed State and territorial Historic Preservation Officers (SHPOs), a handful of local historic district commissions of uneven quality, a National Trust for Historic Preservation with a limited perception of itself, and a new Advisory Council on Historic Preservation (ACHP) composed of presidential appointees and representatives of the Federal agencies which caused most of the destruction.

Fifteen years later, the value of locally significant historic properties is generally accepted, and many tools are available for their preservation. Not all has been achieved that needs to be, and eternal vigilance will be required to hold what has been gained, but today's trends in preservation beyond the parks are very positive.

## Citizen Organizations

A basic premise holds that "historic preservation" is first a citizen movement and last a government program. Not only has the National Trust grown in strength and membership, but hundreds of other citizen organizations have appeared on the national, state, and local scenes. Local citizens have proven the most reliable preservers of local historic properties—and the most effective watchdogs over miscreant Federal agencies. Preservation Action, a citizen lobby, is active in all levels of government. An Archeological Conservancy purchases and protects prehistoric sites. Non-profit funding organizations, patterned largely after the Historic Preservation Fund of North Carolina, Inc., deliver the critical margin of assistance to hundreds of projects each year.

## Federal Agencies

Federal Agencies once type-cast as villians have become more responsible planners in many cases and outright supporters in others. The Federal Highway Administration reports expenditures of $18 million per year for highway related archeology over the past five years. The U.S. Army Corps of Engineers and the Army Materiel Development and Readiness Command are paying for technical assistance from the National Park Service and several States to develop workable and innovative planning systems to deal professionally and economically with historic properties. The Department of Housing and Urban Development, whose "slum clearance" programs did much to inspire the 1966 Act, estimates that it has contributed $206 million to the preservation of historic properties between 1977 and 1980 through its Urban Development Action Grant program alone.

*James Higgins*

*James Higgins*

**An outstanding example of cooperative endeavors for historic preservation is in Lowell, Massachusetts.**

## NPS Standards and Guidelines

Among the most important recent innovations of the National Park Service are standards and guidelines for a wide range of historic preservation activities and an effective new historic preservation planning technology. Together, these assist Federal agencies, States, local governments, and others in making rational decisions about historic properties with an adequate degree of consistency, but without requiring review and concurrence by the NPS or the ACHP on each decision. Thus, a troublesome void is filled in a system far too broad for close central control.

"The Secretary of the Interior's Standards for Historic Preservation Projects" were developed by the National Park Service and adopted by the Department of the Interior in 1978. The standards were originally intended to guide States in handling Historic Preservation Fund projects, Federal agencies in managing historic buildings, and taxpayers in rehabilitating historic properties under a new tax incentive. The standards have proven broad enough to cover an infinite variety of projects, flexible enough to allow the application of reason to individual problems, and specific enough to protect the historic character of individual buildings.

More important, they have become the anchor for a structure that places policy, good practice, and technical information into a coherent relationship. The "standards" are in fact broad statements of policy. If followed, they will produce good historic preservation results. Consequently they are constant and unchanging over the years.

Accompanying them are more specific "guidelines" which explain the "standards" through examples which differentiate acceptable practice and unacceptable practice. The "guidelines" are capable of being explained further by technical information leaflets and are also capable of being modified and improved through accumulated knowledge derived from decisions made on individual projects.

The National Historic Preservation Act Amendments of 1980 direct the Secretary of the Interior to certify State programs periodically for participation in the national programs, to provide for the certification of local governments, and to provide standards and guidelines for Federal agencies. The NPS is carrying out this directive through the development of standards and guidelines for the full range of historic preservation activities in which States, local governments, and Federal agencies interact with NPS. This will include identification, evaluation, documentation, and treatment of historic properties.

## Resource Protection Planning Process

The planning technology being spread by the NPS is often presented under the title Resource Protection Planning Process, or RP3 for short. Essentially an application of basic planning premises to date about historic properties (a State Historic Site Inventory, for example), it enables historic properties to be evaluated within a temporal, geographical, and thematic context instead of requiring a comparison of each property against the National Register Criteria as though it were unique.

Nineteen States and two Federal agencies are in the process of implementing some form of RP3 now. NPS hopes to initiate the system in all States during Fiscal Year 1983. Together with the standards, RP3 should turn primary attention away from the endless demand for more and more information toward sensible, practical, and economical use of available information. Best of all, they create systems that can be broadly monitored by the NPS, eliminating the need to participate in thousands of individual decisions.

Two Reagan administration priorities seem destined to have significant impact upon the preservation world, although at the time of this writing details are not final. These are regulatory reform and an increased role for State Governors in Federal project planning. It is clear that substantial revisions will be made in the regulations by which Federal agencies allow the Advisory Council on Historic Preservation its legally required "reasonable opportunity to comment" on undertakings affecting historic properties.

Regarding the role of the States, President Reagan on July 14, 1982, signed Executive Order 12372, "Inter-governmental Review of Federal Programs," abolishing the old OMB Circular A-95 and allowing Governors to set up whatever mechanisms they choose for State review and comment on Federal projects. Federal agencies are directed either to abide by State comments or show good reason for not doing so. This order has enormous potential for State Historic Preservation Officers who are adept in RP3 approaches, and who have been mindful of the political strength that can be wielded within a State by a strong citizen movement. SHPOs who have neglected either of these could face a difficult period of adjustment.

## Private Sector Involvement

The decentralized, citizen-based approach to historic preservation has naturally made its greatest achievements through stimulation of the private sector. Transcending recent dependence upon non-profit organizations, the movement now includes major corporations, developers, architects, engineers, and investors from the profit-making sector. Federal income tax incentives for rehabilitation of historic structures flow from a series of statutes beginning in 1976.

In 1981 two events brought major changes to historic preservation: (1) project grants under the Historic Preservation Fund were ended, and (2) the tax incentive was increased to an attractive 25% Investment Tax Credit. The result has been a rush by the business world into historic preservation activities. From 1977-1980, the tax incentives program produced 1761 project approvals worth $787 million in rehabilitation work. In FY 1981 the figures were 1375 projects worth $738 million, and in FY 1982 there were 1802 projects worth $1 billion. For FY 1983 the program should approve 2500 projects worth $1.5 billion, with revenue loss to the Treasury estimated at only $170 million. By comparison, in its entire history from 1968 through 1980, the grants program handled 6,724 projects for which a total of $162 million in Federal money was granted. With economic problems now hampering new construction, rehabilitation of historic properties has become good business. Applicants for the benefits must receive certification from the National Park Service that the structure is historic and that the rehabilitation preserves the historic character of the property (meets the Secretary's Standard for Rehabilitation).

A major aspect of historic preservation has always been the task of consciousness-raising—showing citizens that their properties have cultural value and inspiring them to do something about it. In this area, the National Trust for Historic Preservation has excelled. As merchants and officials in older commercia centers became threatened by suburban shopping malls, the Trust launched a highly successful counterattack. Through a low-cost, high-visibility program called "Main Street," the Trust installs a small but active staff in a town. This staff mobilizes the community, instills hope, and generates preservation-oriented approaches to economic revitalization. A frequent result is removal of aluminum or vinyl false fronts installed in earlier futile attempts at "modernization." Historic areas are rehabilitated by the owners, often under the tax incentives, communities regain historic character, and a grateful public returns its business to interesting downtown areas. "Main Street" started with 3 pilot projects in 1977. There are now 30 projects in 6 states.

Throughout the country, hundreds of cooperative efforts are underway in which Federal, State, local, and private resources are marshalled to produce economic development through reuse of existing buildings. More than just a clean-up, paint-up, fix-up campaign, historic preservation has often captured the imagination and stirred the pride of a community. Such undertakings usually involve a State Historic Preservation Officer, a local planning, zoning, or development board, and the listing of a district in the National Register. For the National Park Service, the most extensive cooperative effort of this type is in Lowell, Massachusetts.

## Lowell, Massachusetts

The Lowell effort is built upon a National Historic Landmark district plus two others listed in the National Register by State nomination. The principal historic resource is a series of canals and 19th-century mill buildings that made Lowell important to the American Industrial Revolution. The State has established Lowell State Park and the National Park Service presence is manifest in Lowell National Historical Park. An ambitious preservation-based approach to economic revitalization is coordinated by the Lowell Historic Preservation Commission (LHPC), a unique Federal agency

including local citizens, local officials, State officials, and representatives of the Federal Departments of the Interior, Transportation, and Housing and Urban Development. With a staff of eleven and a budget that has averaged under $1.5 million over the past four years, the Commission has achieved an impressive record. Market Mills, a $12 million combination NPS visitor center, public space, ethnic eatery, and elderly housing, was completed for $1 million in LHPC funds. A trolly has linked the downtown together. Several buildings have been rehabilitated under an $800,000 grant program that leverages seventeen other dollars for every dollar it invests.

Five private preservation projects have been assisted by a low-interest revolving loan fund operated through the Lowell Development Finance Corporation. A wide range of cultural activities based upon the ethnic diversity brought to Lowell (and America) by the Industrial Revolution keeps citizen interest in the overall program at a high level. The authorizing legislation contains a "sunset" provision, requiring the Commission to complete its mission and go out of existence by 1988.

## Conclusion

Since the NPS first began to reach out and join hands with other preservationists, it has been at the center of a growing and increasingly sophisticated historic preservation movement. With the encouragement of the National Park Service, the many other parties to the movement have broadened their roles as they have increased their capabilities. As the trends described above become completed realities, the system which preserves historic properties beyond park boundaries may well reach its full maturation.

*Jerry L. Rogers is the Associate Director, Cultural Resources, National Park Service.*

This dramatic cast iron front belongs to the McLauthlin Elevator Co. building. Built in 1864, the structure is the earliest of its kind in New England and one of only five remaining cast iron buildings in Boston.

*Mike Aver*

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## Shipwreck research and management

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**Publications**

*Underwater Parks:* Symposium proceedings
Edited by Charles A. Hulse in consultation with Donald F. Holocek
Cooperative Extension Service
Michigan State University
East Lansing, Michigan 48824

*Maritime Archaeology*
by Keith Mackelroy, 1978
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George F. Bass, General Editor, 1972
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*Shipwreck Anthropology*
Edited by Richard Gould
(will be published in April or May, 1983)
University of New Mexico Press

## Workshops

Following is the 1983 Workshop Series offered by the Campbell Center For Historic Preservation Studies. For further information, contact Robert Richardson, Director of Curriculm and Development, Campbell Center for Historic Preservation Studies, P.O. Box 66, Mount Carroll, IL 61053.

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Allen Penney

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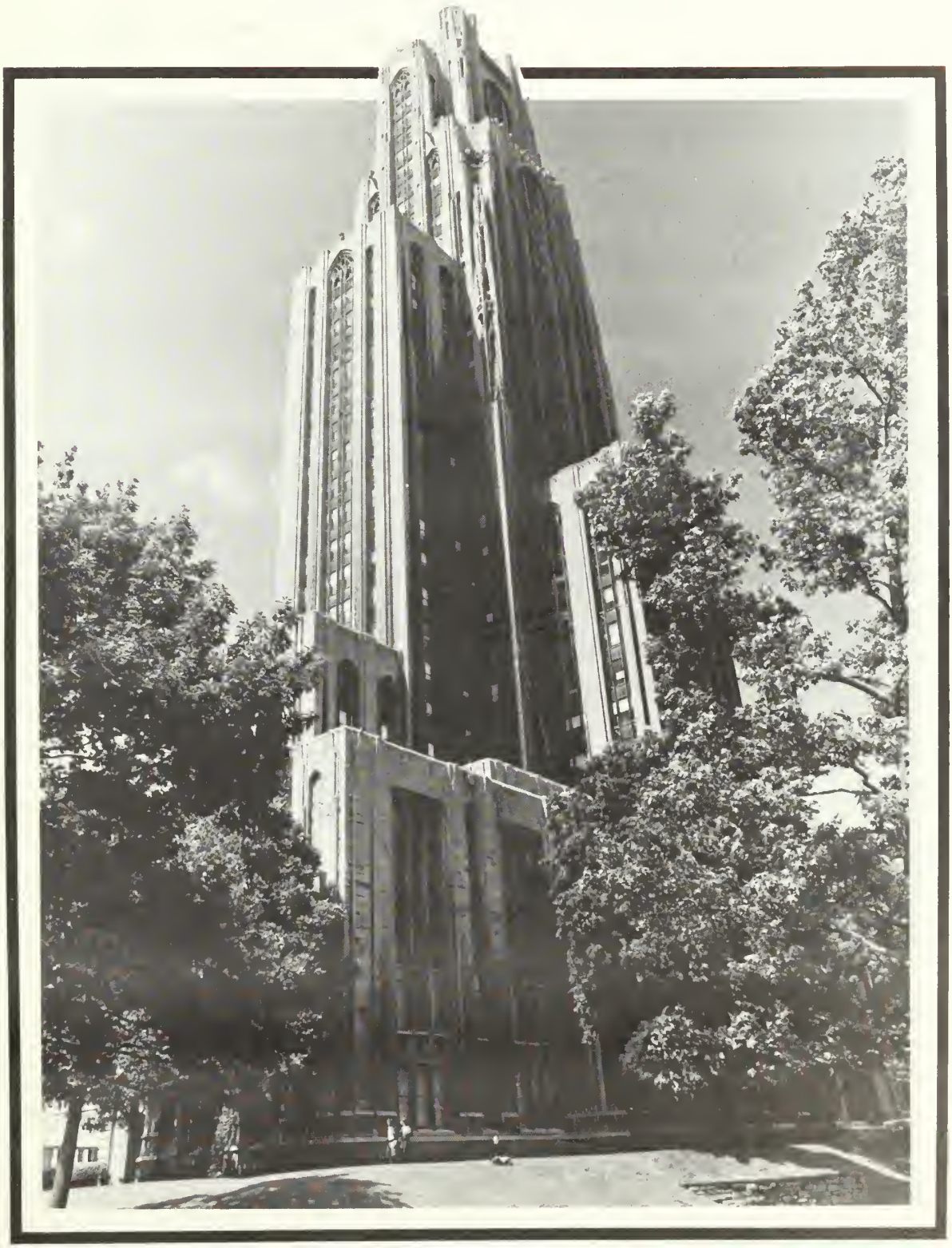
# Trends

1983
Volume 20
Number 3

Academe: A Park and Recreation Resource



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## Trends

**A publication of the Park Practice Program**

The Park Practice Program is a cooperative effort of the National Park Service and the National Recreation and Park Association.

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Articles, suggestions, ideas and comments are invited and should be sent to the Park Practice Program, Division of Cooperative Activities, National Park Service, Washington, D.C. 20240.

# Introduction

This Summer 1983 issue of TRENDS focuses on the significant potential of our colleges and universities to contribute to the planning and management of park and recreation resources. The articles presented in the following pages reflect the exciting and often unique projects and programs being conducted by many college and university Parks and Recreation Departments throughout the United States.

Throughout this issue you will read about partnerships that have been developed between land-managing agencies and academic institutions to solve some complex problems that resource managers must address. Research is assuming an ever-increasing role in affecting park and recreation management policies and some interesting research projects are discussed here. You will read about interpretive courses and programs and the opportunities offered by colleges and universities for the professional development of today's resource managers, as well as the need to acquire new technology and adapt curricula to better prepare the resource managers of tomorrow.

The issues facing resource managers continually become more complex, and there is a need to reach out to organizations and institutions to help solve the planning and management problems of our park and recreation areas and facilities. Academe is one such valuable resource.

*Colleges and universities can significantly contribute to the planning and management of our natural resources.*

# Professional Development

*by Herbert Brantley, Ph.D.*

Resource managers must maintain up-to-date competency in their field if they are to effectively perform their job functions. Universities and colleges are in a unique position to help with this phase of resource management. Yet resource managers, particularly recreation resource managers, have been slow to recognize the potential of colleges and universities to contribute to management of park and recreation resources. This is due in large measure to three factors. First, the faculty of educational units available to provide such service have not been very sophisticated in teaching methodology, nor have they been very knowledgeable about management of natural resources for recreation. Even though many of the faculty come from a recreation managemant setting, not many have representative resource-based experience. Secondly, the need for the universities to recover the cost of providing programs of professional development has not been well received. And, thirdly, the resource manager, possessing a combination of academic experiences and on-the-job training, feels the educational institutions have little to offer.

Obviously, the conditions cited above are undergoing change. It appears that universities and colleges, and in particular the land grant institutions, are uniquely capable of contributing to the management of park and recreation resources. One area which can best be served is that of professional development. This is predicated primarily on the unique mission of the land grant university to provide teaching, research and extension, all of which can be used in professional development. This does not imply that only land grant institutions can make a contribu tion. It's merely a recognition that the elements of professional development for the recreation resource manager are generally combined in the former.

Clemson University

*Managers test their skills while studying resource problems.*

When considering the potential contribution of institutions of higher education to the professional development of park and recreation personnel, it is impractical to concentrate on the educational dimension alone. One should recognize that the three mission elements are likely to be brought to bear on a program of professional development. Thus, it would be appropriate to consider how they are interrelated.

## Research

Theoretically, it is through research that the problems of managers are resolved. The manager seldom has the time or the inclination to engage in the formal, systematic and intrusive process of carrying on the scientific method of inquiry. Such inquiry is the professors' badge of office. Without a program of research the recreation resource faculty would not be able to contribute any more effectively to the professional development of park and recreation personnel than would the faculty from any other academic discipline. It is through research that the problems of the manager are understood. Further, it is through research that the theoretical solutions to the problems can be considered. Professional development, then, provides a forum for the discussion of research results and of the impacts of possible solutions.

It is important that the resource

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*The group poses for the traditional class picture.*

manager consider that often research activity can be undertaken by the university faculty without agency funding. The faculty have interests and needs, coupled with institutional support, which diminish or eliminate contractual requirements. Often work can be done by graduate students at very low cost. However, if the manager is looking for very site-specific answers that have little or no universal application, then there should be no question about the appropriateness of "contract" research.

### Extension

Most professional development activities are considered to be a part of extension. Extension is the outreach arm of the university through the blending of research results with problem analyses and solutions. It has only been during the past few years that university administrators have given impetus to extension activities by all faculty, making outreach programs the objective for all academic units. Thus, there has evolved a tie between faculty and professional development. This has been a boon to those seeking assistance for such programs.

### Teaching

The primary mission of any institution of higher edcucation is teaching. Teaching, as research, is also a badge of office. Participation in professional development activities provides the faculty with opportunities to stay in touch with job requirements of the recreation resource manager. It often provides university students with the chance to interact with the practitioner.

Since teaching is the dominant factor within the troika, it is important for emphasis to be placed on program development which includes the establishment of clear and measurable objectives for each course, and that there be acceptable methods of evaluation.

It is equally important that courses, to the extent possible, provide for on-hand experiences for the participants. Most of the persons engaged in professional development lead active, problem-solving professional lives. To use the lecture method with little audience participation is tantamount to failure.

### Establishing the Relationship

Resource managers should be as objective as possible in selecting a university to provide professional assistance. The presence of an academic department with an appropriate name is not sufficient. It would not be unreasonable to ask for faculty vitae, or to schedule a conference to discuss mutual interests. However, most relationships are developed much less formally than this would imply. The institution generally has developed a "reputation" within the area being considered. Working relationships need to be nurtured over several years leading to confidence levels which indicate potential for success. Neither the agency nor the educational institutions can afford to have these relationships fail.

### Courses

An area of substantial professional development growth over the past several years centers on workshops, seminars and institutes. These vary in length from one day to several weeks. They are provided from several perspectives ranging from the program where need is perceived and content is developed by the faculty to those where needs are identified by the agency and met upon request by the faculty. Each program has its own set of dictates. It would be difficult to determine which is the most effective. However, one could generally say the program which is needed by agency personnel and which is designed in concert with the user and collegiate faculty is most effective.

One problem which arises from user-generated requests is that there are seldom opportunities for multi-agency participation. Thus, there is little cross fertilization between businesses and agencies and the employees of

each. The important dimension for academe and field managers is the development of a strategy which uses the results of research in professional development.

When possible it is preferable to have open admission. It is important to the participants to know about the "mix" of the class in advance. If more than one agency is involved, the faculty needs to structure the course content in ways which prevent an over emphasis on examples from any one agency. Even where there is special attention focused on one of the participating agencies, the problem can be minimized by stating that at the front end of the process.

## Students

The most common relationship is for the provision of student experience. Students are an excellent resource for the recreation resource manager. Field work and practicum experiences are generally required. The agency thus has access to a group of young people who may bring to the agency an exhuberant, fresh approach. The agency, in turn, can be a party to field testing educational theories. The student returns to the campus with an understanding of the bridge between professional preparation and on-the-line management.

## Sabbaticals

An effective, under-utilized resource in professional development is the faculty sabbatical. The system provides a very cost-effective way for the recreation resource manager to bring to an agency an individual who can provide formal on-site instruction, and who can provide informal opportunities for agency personnel to be provided with the latest in management theory.

Since the faculty member is on leave with pay from the university, often a salary is not needed. The short sabbatical, six months or less, generally provides full salary while the two-semester or year-long sabbatical provides one-half salary. Usually, some subsistence is needed since the faculty member is incurring added costs by being away from the normal home base.

## Memoranda of Understanding/Contracts

It is recommended that long before the need for contractual relationships is established, memoranda of understanding should be developed. These provide a visible statement of policy that the relationships are two-way streets. Thus, it is much easier at a later date to enter into formal contractual agreements. It may be possible for the educational institution to lower costs for service by reducing or eliminating "indirect costs." These costs are central to institutional policy. However, if it can be shown through memoranda of understanding that the agencies are providing opportunities and services to the academic program, then there may be reductions in the charges which are normally imposed.

Where desirable for the interested parties to draw up a contract, the formality and the detail may be dictated in part by institutional policy. Even in the absence of such policy the program can be guided by the contract. Services may be agreed upon for a fixed cost for the entire program or may be rated on a unit cost per participant. The latter may take the form of tuition charges or registration fees. Since each institution has its own unique accounting procedures, it is desirable to be able to negotiate the method of payment.

Obviously, the descriptions of relationships presented in the preceding paragraphs provide only a minimum picture of the potential for academe to be a park and recreation resource. Limitations are set only by the imagination. It is important, however, to keep in mind that the results of any program are best achieved through partnership — a partnership in which each party recognizes the uniqueness of the other and in which there is mutual respect.

*Dr. Brantley is Head of Parks, Recreation and Tourism Management and Associate Dean of the College of Forest and Recreation Resources at Clemson University, S.C.*

Clemson University

*Managers become faculty for a day. Gary Everhardt, Superintendent of the Blue Ridge Parkway, leads the class discussion.*

# Will Recreational Activity Lead to Better Health for the Elderly?

*by Carol Cutler Riddick*

How important is recreation in shaping the mental health of older Americans? Can an outdoor camp experience be beneficial to nursing home residents? Will aquariums, fish videotapes, or birdfeeders be effective means for reducing blood pressure and stress, and otherwise improve the health of the elderly? And, can playing videogames lead to improvements in eye-hand coordination and leisure satisfaction of older institutionalized and non-institutionalized persons?

These are just a few of the questions being examined by some of the faculty and graduate students in the Department of Recreation at the University of Maryland. Although these projects are at different phases—some have been completed, some are underway, and some are on the "drawing boards"—they illustrate a "union" of sorts. That is, they could be viewed as a "marriage" between academic research and community service. While at a theoretical or esoteric level the studies may be worthwhile, they also have implications for local recreational program planning and management. These projects, as well as some of their ramifications for the practitioner, are briefly described in this article.

## The Connection Between Recreational Activity and Mental Health

America is a graying nation. Approximately one out of every ten persons in the United States has celebrated his or her 65th birthday. Indeed, it has been projected by 2050, three out of ten persons in this country will live this long.

Thus, in order to understand the relative contribution of recreational activity in shaping the psychological well-being of the elderly, a number of studies have been conducted. Specifically, efforts have been directed at determining the relative effects of a variety of factors, including recreational participation, on older males and older females (with a variety of labor force backgrounds).

Review of survey research findings of thousands of elderly selected at random, reveals at least two interesting facts. First, participation in recreational activities (more so than health status or income level, for example) has emerged as contributing most to the mental health of older persons. Participation level in recreational activities is by far the most meaningful predictor or barometer of how satisfied an individual is with his or her life. Second, the relationship between recreational participation and mental health has consistently been noted, regardless of whether the focus is on older males or older females (including homemakers, retirees, and women reported working outside the home at age 65 or later).

In summary, the data is rather conclusive that older individuals who were more active in recreational pursuits were more likely than inactive persons to experience greater satisfaction in their lives.

This finding has at least one implication for public policy. That is, it appears that social policies in regard to recreational programs for the elderly (such as Senior Centers and those provided in day care settings) may act to influence the life satisfaction of older persons. Consequently, national, state, and local policies dealing with recreational programs for the elderly have considerable potential for reducing unhappiness and enhancing mental health. Perhaps such research findings will prove persuasive in convincing decision makers on the merits of maintaining or increasing the funding levels of recreational programs for older persons.

## A Day Camp for Nursing Home Residents: A Public Service Model

During the past few years, the Special Population Division of the Maryland National Capital Park and Planning Commission, in conjunction with the Prince George's County Department of Aging, has sponsored a day camp for nursing home residents. The goal of the camp is to provide a diversified and enjoyable recreation program which meets some of the leisure needs of those senior citizens who are confined to a nursing home setting.

The seven week camp is held at a county regional park. Within this area, a rustic senior site has been established which, throughout the years, has become more accessible. During any particular weekday a total of approximately 35 residents from two to three nursing homes attend the camp. A salaried staff of five persons, with occasional assistance from volunteers, serves the senior campers. Additionally, nursing home staff (usually two attend per home) assist with activities. In 1982, the total budget for the camp was $4,500.

Once at the park, the nursing home residents' four hour ses-

Carol Riddick

*Participant in "Age of Aquarium" experiment.*

sion is broken into distinct phases. On arrival, refreshment and orientation activities occur. This is followed by a short physical exercise period. Next, seniors are encouraged to participate for about 45 minutes in some scheduled recreational activity such as a nature scavenger hunt or constructing a pine cone and peanut butter bird feeder. Lunch (provided by the nursing home) then follows. The afternoon begins with another 45-minute activity block. Lastly, everyone gets involved in preparing for departure.

Subjective evaluation by the "campers" and nursing home staff suggests this rather unique camp has positive impact on the lives of seniors. However, officials would like to know: (a) what sort of effects (for instance, are participants more likely than non-participants to experience less loneliness and greater contentment with their leisure time); and, (b) how the outdoor day camp can be improved.

Shifting gears, although related, a doctoral candidate desires to undertake an applied research problem on a subject that is of interest to someone "outside the ivory tower." Voila, a match is made! It is anticipated that during the spring and summer of 1983 the student will collect the information needed (in a quasi-experimental fashion) to answer the questions noted above. Expected finished products—a report the sponsoring agencies will find useful and a document the University will accept as a dissertation.

## Watching Fish and Birds: Can They Be Some of the Elderly's Best Friends?

The effects of animals on humans represent a fairly new area of research interest. It has been suggested that pets foster positive emotional, social, and physical health. However, a review of the literature reveals that most of the previous work is based on anecdotal reports or case histories of non-representative institutionalized individuals.

Very few studies have investigated the therapeutic potential of animals under somewhat controlled conditions. One investigation found that pet ownership significantly contributed to coronary heart disease survival regardless of the individuals' psychological or marital background. Furthermore, the relationship between pet ownership and survival remained significant even when those individuals owning dogs were excluded from the analysis. Another study conducted by University of Pennsylvania researchers reported that viewing a fish aquarium was an effective means for reducing the blood pressure and stress of college students and staff.

Considering then that 95 percent of the elderly reside in a community setting, a study of how the lives of the elderly could be affected by the introduction of a new hobby, involving aquariums, was developed. In the fall 1982, the University of Maryland's Graduate School provided a research support award to the Department of Recreation. The objective of the study is to provide information on the feasibility of using fish aquariums for meeting some of the social-psychological and physiological needs of the elderly.

The research design for this pilot study involves three groups. Each group numbers approximately ten persons. Individuals in all the groups reside in a public subsidized housing complex for senior citizens in Montgomery County, Maryland. The study began when pretests were administered in February 1983. Every effort was made to match individuals on important characteristics so that the membership of each group, when compared to the other two groups, was more or less the same. It is expected the study will be conducted over a six-month period, at which time post-testing will occur.

The first group has received aquarium tanks supplied with goldfish. This species of animals was chosen because it can easily be cared for—it tolerates erratic feedings and maintenance schedules as well as extreme temperatures. Furthermore, it

responds to displays of affection, is trainable, and has a long life expectancy. This group is receiving bi-weekly visits lasting approximately 30 minutes in duration. During this visit, tank maintenance assistance is provided, plus the older person's blood pressure is recorded.

The second group is involved in a friendly visitor's program. Like the first group, they are on a bi-weekly schedule with visits lasting approximately 30 minutes. During these visits, the blood pressure levels will also be recorded. The primary rationale for having the visitor's group is to hold constant any possible effects the tank maintenance visits have on the first group (and hence, ''tease out'' the impact of aquariums per se versus maintenance visits).

The third group involved in ''Age of Aquarium & Friendly Visitor Project'' is a control group. During the six month study they will receive neither fish aquariums nor friendly visits. Instead, this group will act as baseline for comparison. After the research project is concluded, members of the second and third groups will be offered an opportunity to receive aquariums.

While the ''jury is still out'' on the case of introducing community elders to aquariums, a few observations (admittedly based on subjective reactions and ''eyeballing'' pretest results) can be noted. First, the support and encouragement by members of different levels of government for the study have been remarkable. It has evolved as a cooperative agreement among county, state, and federal employees. Second, the response of the elderly residents of the housing unit involved in the study has been overwhelmingly positive. Indeed, the researchers cannot walk down the apartment's corridors without being beseiged by inquiries from the residents, their visitors, or custodial staff on the progress of the study. Thirdly, preliminary findings suggest that aquarium owners are experiencing reductions in loneliness.

The significance of this relatively inexpensive program (it cost less than $20 per tank set-up) is that it may yield noteworthy benefits. That is, we may find that it is effective in altering stress, blood pressure, loneliness, or improving happiness or satisfaction with one's leisure time.

A spin-off of our research project, the University of Pennsylvania study noted above (dealing with college students and aquariums), and a new videogame show are currently unfolding. The University of Pennsylvania study found that for subjects who suffered from high blood pressure before the experiment began, fish aquarium watching proved even more effective than for the non-hypertensives involved in the study. Furthermore, companies have recently reported that videotapes showing birds, waterfalls, ocean waves, and fish have been a commercial success. These ''television tranquilizers'' have had a number of applications—so far they have been used in hospitals, dentist offices, banks, and living rooms.

Consequently, given all these developments, one of the graduate students in the Department of Recreation is interested in conducting a laboratory experiment involving elderly persons with high blood pressure. The basic questions behind the study are: does either daily watching of fish aquariums or fish videotapes reduce blood pressure and stress of hypertensives; and (2) which, if any, of the two interventions (real fish or taped fish) is more effective?

For instance, if the fish videotape is as every bit effective or more effective than looking at real aquariums, imagine the ease of caring for a videotape over a real-life aquarium. Indeed, one might conjure up visions of residents of nursing homes or the community elderly taking a ''stress'' break or viewing a fish videotape as a follow-up to television soap operas!

Still another study in the planning stage is one involving the intervention of wild bird feeders. As envisioned, selected nursing home residents will be provided an opportunity to be responsible for the care of wild birds. This would be a replication of work done by researchers at Marietta College. They found, among other things, significantly higher scores by individuals receiving a bird feeder outside their window (compared to individuals not receiving such feeders) on life satisfaction, happiness, alertness, and sociability. If such findings can be verified, wild bird feeders may be confirmed as an inexpensive means for improving the health of senior citizens.

## Videogame Play and Seniors

A new technological innovation, videogame play, is sweeping the attention of adolescents and adults across the country. Some persons have begun debating the merits of videogames. Research on the topic is scarce and what has been reported is speculative

Carol Riddick

*Watch out Ms. Pac-Man!*

and anecdotal at best. Some individuals (for instance, the Surgeon General) allege that videogame play is addictive and hence bad for teenagers.

In contrast, articles in various trade and manufacturers magazines as well as the popular press attributed videogame play with positive gains in confidence, accomplishment, self-image, social interaction, and activity enjoyment. Additionally, those benefits which were consistently cited in the videogame literature dealt with improvements of motor skills—such as hand-eye coordination, reflexes, and agility.

In regard to quasi-experimental research on the topic, only two pertinent studies could be identified. In one study, the Hebrew Home of Greater Washington reported (using the one-shot case study approach) that nursing home residents given the opportunity to play videogames enjoyed the experience. Many of the residents reported feeling good about participating in the age of technology and looked forward to sharing their newly acquired skill with their families. A second study was conducted in a Mid-West nursing home. According to observations by the activity director, residents experienceed increased self-confidence and hand-eye coordination through videogame play.

Because of the paucity of research on the topic, two graduate students are planning to undertake a systematic study on the psychosocial and health benefits of computerized, electronic videogames on nursing home residents and Senior Center participants. Some of the speculated results of the study include demonstrating that videogame play can improve motor skills and self-confidence of the elderly. It is also believed that the findings can be used to offset negative images, held by recreational/activity staff, about the psychomotor capabilities of older persons.

## Conclusion

Universities and colleges can be a valuable resource for the practitioner. And "real world" agencies definitely are valuable resources for academicians and students. Biologists term such an interdependence symbiosis.

In short, service providers can guide researchers in posing relevant questions for study. Researchers in turn can assist recreation service providers in determining ways for improving their services. And the students, the professionals of tomorrow, will gain all the more from such a union. Our experiences have found that these marriages between academe and practitioners are heavenly! Indeed, such alliances must be made between recreation providers and recreation researchers interested in serving the geriatric population. An adaptation of a Beatles' song might best say it all—

When I get older, loosing my hair
Many years from now
Will you still need me,
Will you better serve me,
When I'm sixty-four?

*For further information about any of the studies cited in this article contact: Carol Cutler Riddick, Assistant Professor, Department of Recreation, University of Maryland, College Park, MD 20742.*

# Native American Interpretation/Environmental Education

*by David Jackson*

Native American Interpretation is an area of great public interest. However, the public presentation of many topics can create problems of understanding and the use of many topics of interpretation can be a matter of serious concern to local Indian groups. Placed within a different worldview and involving spiritual considerations, many seemingly innocent topics such as gathering basket-making materials can become a very complex process of demonstration and interpretation.

The straightforward presentation of archaeological findings from the recent past (several hundred years) can be viewed by some Indian groups as a sacrilegious tampering with the dead. The proper burial and respect for these remains should be kept in mind when dealing with materials from archaeological excavations.

Many general types of information about Indian spiritual practices can be a matter of interpretation for the public. However, it is a good idea to consult with local Indian groups because many items of sacred knowledge can somehow find their way into field notes and other published materials which are not meant for sharing with people who are unable to place it within its proper context.

Ways of dealing with the cultural demonstration to increase its effectiveness as an interpretive event are important. Much is lost if the Indian weaver or carver, for example, does not communicate with the public.

Over the years the staff of the Native American Career Education in Natural Resources program of the College of Natural Resources, Humboldt State University, has sought to develop and extend a course on Native American Interpretation and a correlative offering with the Environmental Education program of the Department of Education.

## Historical Overview

Both classes start with a brief overview of Indian history. Students frequently find this section of the class to be the most difficult because of the great complexity of the federal-Indian relationship from the beginning up to the present time. Yet, this is the most important part of this course—to understand how Indian people got to the present time, to understand the many changes in Indian culture, changes in lifestyle, and changes in how Indians themselves view Indian culture today.

At the present time there is still a general lack of understanding by the public of Indian history. We approach the historical overview in class so that students may apply a broad perspective in focusing on what is relevant for a particular area. The situation in California where there are no Indian treaties is quite different from Washington state which is very much the scene of important Indian treaty issues. This fact will affect how Indian interpretation will have to be handled.

## Research

After the overview of Indian history, the second step in program development is the research of published and unpublished materials. This is the easiest step and can lead to a false sense of security. The anthropological materials are frequently written with a great sense of authority. It is important to keep in mind that much of this material has been written by people who usually have not lived the culture, are looking at it from the outside and who have a completely different background, lifestyle, and personal set of assumptions.

## Consultation

The third step should be the consultation with local Indian traditional people. Making contact can be a problem in itself. In some areas there will be Indian organizations which might be used to make reliable contacts. Frequently the traditional people will be of advanced years and will require some effort for successful contact.

Just locating someone to weave baskets or to perform some other cultural demonstration will probably not be enough. Because a person has a certain skill does not guarantee that there will be a communication of that skill. Time will be needed to see if the contact person is not only willing to demonstrate in public, but also if there is going to be any communication. Cultural demonstration without communication is no interpretation at all.

Earlier this year we decided to take a field trip to the Warm Springs Dam in Sonoma County (CA) to visit some sedge gathering sites with a group of Pomo basket makers. Pomo basketry has reached a very high level of craft, and we were excited and eager to see how the materials were gathered. This site is also of interest because many prime sedge beds were to be flooded and several of these sites had the plants removed and transplanted to a site below the dam by this same group of weavers.

Previously, in another class,

Humboldt State University

*Distinguished Pomo Basket Maker Elsie Allen selects sedge roots.*

some Pomo basket weavers had demonstrated weaving and the gathering process. Time of the year was observed, seasoning and curing were discussed, and basic techniques of weaving were demonstrated. Mention was made at that time of proper attitude and spiritual readiness, although it was not stressed in any particular way.

This time was to be different. We were to be accompanied by a Pomo medicine woman. She quickly mentioned that they had not seen the sedge beds since the removal project, and the sedge beds were now off limits as construction came to an end.

We arrived at a soon-to-be-flooded sedge bed and all rushed down to the bed to begin digging. After several minutes our leader called a halt to the digging and explained that there were a number of observations to be made. A prayer was offered and a quick survey of the group was made to determine:

- were any of the women having a menstrual period?
- were any wives of the men having menstrual periods?
- why were the men interested in Pomo basketry (since traditionally it was not thought proper for most men to be involved with basketry)?

An explanation that this class was interested in the resource issue of Indian access to a sedge gathering site on public land did not seem to be an adequate explanation to the medicine woman. She stressed the importance of proper spiritual preparation and of our personal attitudes since they could be essential to the survival of a particular sedge bed in the future. Indian environmental considerations were discussed to make sure that our gathering left the bed with the necessary means of regeneration. After characteristics of root texture which were most desirable for weaving were discussed, and proper use of the tools was demonstrated, approximately half the group left the immediate vicinity of the site because they had been declared spiritually impure for this particular occasion.

While our previous experience with Pomo weavers had not entirely prepared us for this situation, the participation of the medicine woman had undeniably added richness to this demonstration. It was important that basketry be placed within a traditional spiritual context, and it gave an added dimension for members of the class.

The medicine woman was comfortable in her public role as an interpreter, and her authenticity was undeniable. For those members who would not participate in the gathering, other basket makers were present to discuss gathering and the preparation of the materials for weaving. An anthropologist from the removal project was also present to explain the agency role and objectives.

In this case spending time with the medicine woman before the field trip would have helped us to overcome some of the problems which were mentioned earlier. This was also a situation where no intervention by the agency representative was necessary in any aspects of the cultural demonstration. This demonstration featured the following desirable interpretive qualities:

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*Members of interpretation class with Elsie Allen.*

— involvement of a traditional Indian
— demonstration of a craft of great complexity and utility
— a cultural demonstration placed within its traditional spiritual context
— good communication between the demonstrators and the public.

This cultural demonstration and the entire sedge transplanting project show a desirable relationship between an Indian group—not just in interpretation but also in implementing Indian concerns in an important land management issue.

## Legislation

An important part of the Native American Interpretation class also covers key cultural resource management legislation such as the American Indian Religious Freedom Act, P.L. 95-341, and agency policies such as National Park Service proposed Native American Relationships Policy; Management Policy Interpreters need to be aware of their own agency policies and to have a good general idea of what should be done as a matter of course in dealing with Indian subjects of interpretation and Indian concerns in land management and planning issues.

Our class in Environmental Education is centered on the use and adaptation of various strategies of environmental education for use in Indian schools, particularly Indian Reservation schools. We have had some success using and adapting the publication "Introduce Science to Students Using the Environment in Northern California Indian schools."

## Conclusion

In summary our class in Native American Interpretation uses the following syllabus:

— Overview of general Indian history
— Research of published and unpublished materials
— Contact with Indian resource people (traditional Indian people)
— Review of Cultural Resource Management legislation
— Discussion of agency-Native American Relationship policies
— Public Presentation.

Consideration of Indians as people, consideration of Indian culture through time, and consideration of Indian culture within its spiritual context should assist the interpreter in the development and presentation of Indian interpretive projects.

*David Jackson is the Director of the Native American Career Education in Natural Resources program of the College of Natural Resources, Humboldt State University, Arcata, CA.*

# Cooperative Interpretive Training Program

*by Donald S. Warder, Ph.D.*

In mid-May over the last two years, 35 men and women students from the University of Wyoming (UW) have relived the harsh life of new recruits in the U.S. Army of the Frontier as well as being military post laundresses. The time period replicated has been the mid-1870s. The project has been a duplication for university students of the NPS "Camp of Instruction" for living history interpreters. The place has been Fort Laramie National Historic Site (WY) where, historically, soldiers were actively protecting emigrants traveling the Oregon Trail.

This unique academic experiment was developed by the UW Department of Recreation and Park Administration with the full cooperation of the National Park Service. Fort Laramie National Historic Site, active as a military post from the late 1840s until about 1889, has largely been restored and presently serves approximately 90,000 tourists a year. The academic program was devised to provide students with a first-hand perspective of how to offer a living history interpretive program to the public at such a site. Important to such a process, the students learned how it actually felt to live during the 1870s, leaving behind the trappings of our modern society.

Each day began with an authentic 5:15 a.m. "First Call," followed by reveille, inspection in ranks and a standard 1870s Army-issued breakfast. The rest of each day followed the true-to-life daily tasks and training programs of yesteryear's soldiers. The fifteen women students dressed and performed duties as frontier Army post laundresses or as officers' wives.

Special features in the intensive course for the men involved working at various duty stations around the fort, as well as standing guard for one night. An "incident" was scheduled, allowing the students to react as soldiers would have at the frontier post. In addition, students participated in a campaign involving a six-mile march, an overnight campout, carrying full field equipment. The experience was designed to simulate the patrol actions in the Fort's history. During the latest course, Indians participated by coming into the campaign encampment, speaking only in sign language. It was obvious by the student's reactions that the degree of realism desired was achieved. Both the laundresses and soldiers attended a barrack's dance late in the week where period music was played and dances of the period were taught.

The National Park Service has used the living history interpretive technique for many years to train personnel. The method involves replicating the most authentic atmosphere possible in order to re-create a way of life of a given locale at a particular point in time. Food, clothing, weapons, and even activities are modeled in minute detail on carefully researched originals. In the UW program, for example, this included using duplicates of official War Department Articles of War and enlistment papers.

*University of Wyoming*

*Women students performing duties as frontier Army post laundresses.*

The idea of applying the training session technique to an academic program was conceived by Dr. Donald S. Warder, UW Recreation and Park Administration Department Head, who worked extensively with National Park Service administration. Gary Howe, Superintendent at Fort Laramie National Historic Site, shared the enthusiasm for developing the course. A total of eleven instructors were involved in teaching the course, several of whom are active National Park Service employees from throughout the region. These include Ellis LeFevre, Dinosaur National Monument (CO-UT); Neil Mangum, Custer Battlefield National Monument (MT); Mike Livingston, Gary Howe and Tony Tommel from Fort Laramie; retired National Park Service employee Dr. Donald Rickey; and Warder. Uniforms, furnishings and all the necessary equipment were provided by Fort Laramie National Historic Site and Scotts Bluff National Monument (NE).

The course has been designed to maintain high academic standards. Students wrote a final examination and demonstrated living history interpretive techniques to the visiting public.

The course was considered a huge success by the National Park Service, the University and the Department. Students have been unanimous in their support for continuing the course in future summers. The benefits to both the National Park Service and the students are many.

University of Wyoming

University of Wyoming

*Students learn how it felt to live during the 1870s by participating in true-to-life daily tasks and training programs.*

*Dr. Warder is Head of the Recreation and Park Administration Department, University of Wyoming.*

# Changing Degree Programs to Enhance Student Skills

*by Louis F. Twardzik*

The title of this article is noteworthy, not only because of the subject, but because it calls for a direct response. Unquestionably, this subject-title is about benefitting students and calls for something they might find useful, and not necessarily for the benefit of the institution, faculty, or profession. It is not possible, however, to address curricular changes that will benefit students without a critical review of those that are responsible for providing or conferring those benefits.

## Understanding the Student's Interest

Clearly, the park and recreation student, regardless of competition in the job market, is studying toward achieving a satisfying life through professional employment. Equally clear is the employment position facing students today. This is probably the worst such market new graduates have faced. This means that students can't even depend on the limited opportunity for jobs created by normal attrition, resignations, retirements and deaths, because workers prefer to stay on the job longer in times of economic stress.

The few available positions are often left open by managers to fulfill budget reductions. The realistic employment picture facing the new graduate is that those few beginning positions that do surface are quickly filled by the graduates who are currently employed part-time by the agency while waiting for a full-time opening, or by those who served a highly successful intern program with the agency. Recent graduates who have served an internship or worked part-time are known and tested products and not surprisingly, are generally offered those openings, regardless of official search procedures.

There is a difference between the employment opportunities available to students based on their area of emphasis—administration, interpretation, therapeutic recreation—but for the purpose of this article they will be considered as being equal in the problems they each experience in finding suitable professional employment. They are all at a disadvantage because of the market.

## Understanding the Institutions

The lack of professional job opportunities threatens to create an over-supply situation which in turn threatens the rationale for continuing those university and college educational programs. There can be no doubt that the condition of the economy during the early part of this decade cannot tolerate a continual condition of over-supply. Funding of park and recreation and leisure study departments will be severely curtailed as universities and colleges reassess their educational priorities.

The educational institutions that will survive and possibly prosper will be those that, despite obstacles of scarcity, can successfully enhance the student's education and skills and employment potential. This is not to suggest that the surviving institutions will be the same leading universities of today. Immediate needs have to be identified and met now, but universities were not made by God or man to respond to the short term. If the national economy continues its present pace of recovery for another five years, it is not unreasonable to foresee a heavy fallout of college and university programs of study in park, recreation, leisure studies and tourism because much of the remaining demand for graduates can be met by junior colleges, small private colleges, and private professional training institutes, at a lesser cost. All of these institutions can use former college and university faculty in parks and recreation to teach their students under short-term, semester-long contracts. The four-year and graduate degree-granting institutions that survive this decade will be those that are capable of changing to accommodate the changing professional needs of students by enhancing their skills and attitudes, and making them employable as well as educated. As survivors, these four-year and graduate professional programs will be well positioned to assume continuing leadership in their teaching and research programs, as the economy improves. But so will the small private colleges, junior colleges and private training institutes who will have accommodated students' employability needs.

There is no assurance that these new leader institutions will include all of those that have achieved accreditation by the National Recreation and Park Association (See Who Can You Turn To?).[1] One of the most difficult programs facing the universities and colleges is that many have misjudged the kind of facul-

ty needed to teach and do research in the 1980's. There seemed, reasonably enough, during these earlier years, a need for faculty who could bring a more scientific orientation to teaching and research in parks and recreation (See Who Can You Turn To?).[2] An approach that would not only improve the kind of teaching and research available and needed by students, but would also help the professional field achieve an acceptance within the academic community.

As a result of implementing that rationale, the changes in faculty in most institutions have been remarkably upgraded during the past decade with increasing numbers of faculty holding doctoral degrees and research skills (See Who Can You Turn To?).[3] These new faculty are starting to bloom in their own areas of emphasis. They are beginning to achieve tenure and are therefore not overly interested in change; first because colleges and universities and their faculties do not change quickly, and secondly, this group of new faculty are on a fast track of their own and now is the worst possible time to interrupt their progress in research and publication.

It is this author's opinion that some of our leading programs and departments in parks and recreation may not survive because their fast-track faculty may be leading them in a direction completely separate from the new needs of the public and the profession during the short term.

The enigma is clearly that these same faculty are needed for the future of the institution and the profession in the long term because their scientific advances in teaching, writing and research

Michigan State University

*Students relax on campus at Michigan State University.*

will continue to be the basis for improving professional programs in higher education. But how to capture and use these talents in keeping with the short-run survival needs during the next five years is the critical question.

Philosophically, there is little choice but to adopt the views of two of the nation's most successful administrators of higher education:

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*By tradition, universities are primarily contemplative and reflective institutions, not active instruments for change. The tradition will no longer suffice as justification for passivism. Most observers agree that the forces are such that universities will inevitably be transformed. The only questions which remain are whether the transformation is to come from within or without and will the change be truly creative or merely reactive.*

*Clifton R. Wharton, Jr.*

*(See Who Can You Turn To?).*[4]

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*Can a large university retain its stability, its integrity, and its usefulness to society by continuing to carry on in the same way as before, doing more and more of the same things, or must it change?*

*It is my belief, and I hope it is yours, that it must change; that the pressures and strains are so intense and so persistent as to make innovation mandatory. We see old attitudes, old methods, old values, being challenged and changes in society all around us. Can we expect the university, itself a social instrument, to escape unchallenged and unchanged? We cannot.*

*John A. Hannah*
*See Who Can You Turn To?).*[5]

Both Drs. Hannah and Wharton confirm that the role of the university is to assist in meeting social needs as well as discovering and teaching truth.

It follows that if the progress and advances that have been made in park and recreation education are to continue, the institutes that have made these contributions over time will have to bridge the short-term gap by developing a teaching and research program that meets the needs of the park, recreation, leisure and tourism service systems as they exist now. The consequences of not accepting this need for change is to produce graduates who are not suitably prepared professionally and, therefore, not employable.

There is no question, professionally-oriented curricula cannot withstand such rejection of its graduates for long. With the disappearance of baccalaureate programs of study, departments would be left with only the graduate program and the graduate faculty intact. It is generally accepted that some graduate level faculty, especially in those academic departments where they dictate matters of curriculum, would be pleased to have the undergraduate programs and faculties disappear, leaving them with limited numbers of high level students. Universities are not above encouraging this attitude: they generally attribute higher value to graduate level teaching and advising. The graduate level faculty can teach ten graduate students and receive credit comparable to an undergraduate faculty member who teaches many times more undergraduate students. Doctoral candidates are highest; a teacher need only be responsible for a relatively few of them.

This approach to higher education has been accepted in the past largely because graduate faculty are the first to be tenured. When the universities and colleges return again to the more conventional state, this approach to higher education will probably slip back into place. In the meantime, there is no assurance that professional education will return to what it has been. Society, including state legislatures, is evaluating university and college performance more rigorously. Criteria is often based on 1) the current demand for professional education and training, and 2) programs that will satisfy the demand.

## Outside Help

Regardless of the composition of the faculty, most university and college departments would benefit from outside assistance in planning the development of a short-term, survival, academic program. Conventional wisdom suggests that advisory groups, including professional practitioners, various institutional representatives, as well as faculty and students should be established to help guide the academic departments through the remainder of the 1980's.

Each department obviously should develop groups according to their particular needs and available talent. Nevertheless, it seems a caveat is in order: emphasis should be on identifying new needs and how to change resources and programs to meet them. Traditionally-minded people will contribute little to these

goals; students without work experience will have little to offer, and neither will affirmative action considerations in the composition of the committee. The people who serve on advisory committees should be recognized as being capable of innovative and critical inquiry. And to achieve this committee makeup, it probably will be necessary to appoint people who may not even be acquainted with the curriculum in parks, recreation, leisure studies and tourism. Example: every curriculum committee today in this field is addressing the problems of how their students can enroll in business college classes which, because of the enormous demand throughout the university, are often closed to non-business majors. The most traditional response seems to be to find other departments in the university, i.e., economics, who offer somewhat similar courses or, if they are not available to park and recreation majors, or are not satisfactory substitutes, to drop the requirement for business management courses.

A non-traditional response to the problem could be to permit students to enroll in community colleges for business management courses for university credit or contract with a community college instructor to teach a business management course in the park and recreation department as a visiting lecturer, for one term a year. These latter two responses will not readily occur to traditionally-minded advisers and faculty because they know the problems associated with these options. The non-traditionally — minded faculty and advisers may come closer to the solution because of a willingness to address the problems of students and a feeling of not being bound to the institution's constraints, including business college accrediting programs which monitor the ratio of instructors and students.

An academic advisory committee of this type should not be expected to gather data. The department faculty should perform this function, thereby permitting non-faculty members to address issues and not become involved in discussions on methodology of research.

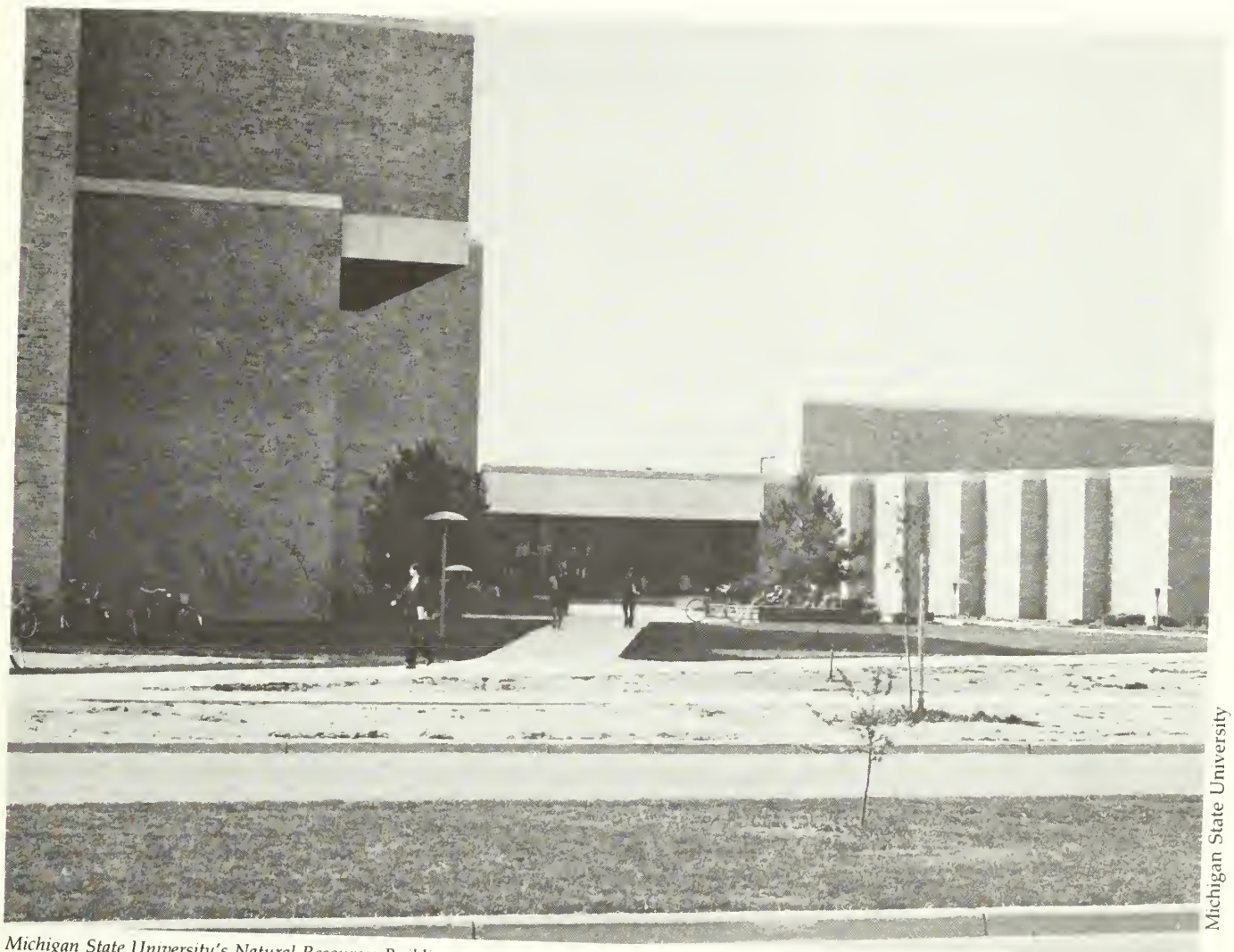
## Managing Existing Resources

The modern university and college includes a great variety of applied fields of study ranging from medicine, horticulture, education, sociology, and parks and recreation and leisure, as well as the basic disciplines of biology, chemistry, mathematics, psychology, upon which they depend for basic theory.

The justification and growth of the applied fields of study is generally predicated on 1) social demand, and 2) a sound relationship with one or more basic disciplines. In the process of growth, it is not uncommon for applied fields to compete for prominence and social demand and university resources. As a result, the applied fields of study almost always follow a single, common, narrow competitive track of growth and development. With age, they are buttressed by a professional clientele capable of exerting outside pressure on the university through a variety of institutional arrangements, including accreditation, certification, registration and licensing. Their source of power is their ability to withhold employment opportunities for graduates of institutions that do not conform to their criteria.

This is the general strategy followed by universities and applied fields. Today, the sad state of financial exigency of many universities and colleges is not limited to a few industrial state universities anymore. It is becoming a nationwide phenomena and new strategies of advancing professional fields is in order. Primary amongst these new ways of attempting to maintain and improve existing curricula is to enter into new relationships with other fields of applied studies where mutual goals are enhanced. In the process, it may be necessary to at least modify some of the constraining and regulatory programs, including accreditation.

Single-track professional curriculum development is no longer a useful strategy. In fact, it may never again be possible regardless of how fast and far the economy recovers. For those who continue to harbor contrary views about single-track professionalism in university curricula, they might gain some additional insight into the inevitability of the need to work on dual tracks by noting how the world's largest and most successful business enterprise, General Motors, similarly faced up to the reality of a changing world and its changing markets and its ability to compete in them and took upon itself a foreign competitor, Toyota, to jointly build a small car. They obviously foresaw mutual benefits in this arrangement. University departments should engage in similar searches



Michigan State University

*Michigan State University's Natural Resources Building.*

for either new partners or new relationships with other applied academic departments.

## Partnerships and Relationships

Partnerships can generally be considered arrangements in which two or more departments make a significant commitment to establishing a new joint program, i.e., a joint area of study. Relationships, on the other hand, can mean a joint working relationship between departments mutually establishing a jointly-administered and taught course, or joint faculty appointments.

The essence of recreation is such that a great number of academic departments consider it as part of their area of study; departments of geography, astronomy, museums, urban planning and landscape architecture, forestry, horticulture, medicine, and there are others. The relationships that a park and recreation department might establish need not include a transfer of funds. Some institutions permit an exchange of faculty between departments with adjunct professorship status. When an exchange involves mutual benefits in teaching courses, there is no need for salary exchange because each department's curriculum is enhanced in the process.

Even when courses are not exchanged, adjunct or joint appointments serve to break down the single-track, professional curriculm development mentality and that in itself is adequate justification for joint or adjunct faculty appointments.

It is therefore not uncommon to have faculty in park and recreation departments with joint appointments in departments of sociology, education, physical education, forestry, and others. Most often the relationship is dependent on the various educational backgrounds of the faculty member. A professor in a park and recreation department who has one of his degrees in physical education or forestry would be more apt to be offered and take a joint appointment in departments of physical education or forestry.

The partnership kinds of arrangements are much more difficult and time consuming to arrange. They generally include joint offering of degree programs or heavy commitments to new courses. Some underway at Michigan State University are the joint graduate degree program between the College of Business which offers an MBA degree (Master of Business Administration), and the Department of Park and Recreation Resources (PRR) and its MS degree (Master of Science).

The need for additional business management background in the professional education program of parks and recreation is apparent. Colleges of business are overwhelmed with demand for their courses. In 1979, the Department of Park and Recreation Resources initiated a proposal which recognizes the benefits students would receive by taking a graduate program that would result in the students receiving both the MBA and MS degrees. While the time involved in completing the joint program is greater than that required for one, it is less than that required if the student took both degrees separately.

## What are the Mutual Benefits?

Students in PRR are guaranteed access to business management courses that are offered by faculty with great competence in management. Business students who take the dual program generally have an interest in tourism and commercial recreation, and similarly benefit from courses offered by parks and recreation faculty in parks and recreation policy, management, theory, planning and design.

While this may very well be the first joint MS-MBA program offered to students in parks and recreation in the country, it has not required additional funding (including foundation seed-money), or transfer of salaries. The background skills of graduates of this program are enhanced enormously. While the program is too new to report on the employability of these graduates, it's reasonable to expect that they will be in demand—regardless of the state of the economy.

There are similar opportunities for joint undergraduate degree programs. Park management concepts throughout the country have gradually worked themselves into an efficiency model of management. This process of rationalizing machine maintenance over labor-intensive programs has rejected the once popular horticultural emphasis in parks planning, design, development and management. Texas Tech University is the best known university curriculum in the country for its combination of horticultural, landscape architectural and recreation areas of study. Today, there are few park and recreation curricula that even offer their students electives in horticulture.

The general condition of American parks reflects this turning away from horticultural planning because of a general inclination to replace aesthetics with softball fields. The pendulum has swung so radically in the direction of park maintenance efficiency and sports activities that there is now a countering awareness that parks should once again be balanced with aesthetic experiences based on the science and practice of horticulture and landscape architecture.

Into this matrix of supply and demand and the need to enhance student skills and job opportunities, the private sector should be recognized for what it contributes to both knowledge and employment of people. Park and recreation majors with horticultural backgrounds and skills may even be in greater demand in the private sector of parks, resorts, and building and condominium management than in the public sector. Recognizing this apparent need, the faculty of Park and Recreation Resources at Michigan State University and the Department of Horticulture are in the process of developing a

joint B.S. degree program in Park Horticulture. Planning for the program has proceeded to the point that in all probability it will not be necessary to employ additional faculty even though at least a few new courses will be required. Basically, the four year program will consist of a proper mix of existing courses in both departments and the School of Urban Planning and Landscape Architecture.

## Conclusion

Changing degree programs in the professional fields is an ongoing, normal function of the university. The difference during the past four years is that these haven't been normal times and, therefore, the process and kinds of change to accommodate the needs of students and society have had to be increased.

The substance of change that seems to be demanded to universities and colleges is also not the normal refinements of existing courses of study. It's more in the nature of dramatic change in perceptions by faculty as to what constitutes the professional field, and then how to educate and train students for it, now. To assure that these perceptions are accurate, effective advising groups, including practitioners, should be appointed.

It has been noted that the programs of professional validation—accreditation, certification, registration and licensing—take on greater importance during times of low employment markets because of the ability of the professional organizations to control employment of graduates, whereas the need for validation is greater during high demand in order "to protect society" from educational programs of questionable merit. In either case, faculty have a concern for validation as additional inducement to establish advisory committees or councils.

So, while the question about changing degree programs represents a never ending phenomena in higher education, the severity of change during this decade requires an especially sensitive and innovative spirit by the university and the profession to understand mutual needs, and then a willingness to make appropriate change in both academic and professional programs.

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# Carrying Capacity: Evolution of Management Concepts for the National Parks

*by Patricia E. Aspland and Katharine A. Pawelko*

A unique American institution, the National Park, was first introduced with the Congressional designation of the Yellowstone area as a public park. Two primary purposes were addressed in this law: one, the preservation of unique lands and, two, the use of these areas as "pleasuring grounds" by the public. The 1872 act specifically stated that "the Yellowstone region is hereby reserved and withdrawn from settlement, occupancy, or sale. . . and set apart as a park or pleasuring ground for the benefit and enjoyment of the people. . . The Secretary of the Interior shall provide for the preservation. . . of all timber, mineral deposits, natural curiosities, or wonders within said park. . . in their natural condition." (17 Stat. 32)(U.S.C., title 16, Sec. 21 & 22). Later, when an act to establish a National Park Service was enacted in 1916 to provide an administrative vehicle to manage and maintain the quality within the expanding park system, it reiterated that the parks existed for the concurrent purposes of preserving unique national resources, while also providing for use and enjoyment of the people.

## Philosophical Dilemma that the Act Poses

While more units were added to the National Park System, it wasn't until the post-World War II period that the American public increasingly became avid visitors to the country's natural park heritage — "the crown jewels." Much of this change in visitor behavior was due to the advent of the industrial tourism age which permitted and encouraged "mass recreation" opportunities. Park managers, who continuously had to encourage people to visit the parks, were now busily involved with serving droves of itinerant visitors. With timely vision, precipitated by the trend of burgeoning numbers of visitors, the National Park Service implemented "Mission 66," a ten-year plan, bridging the decades of the 1950's and 1960's, to expand, upgrade and maintain the parks.

With the turnaround in the park visitor situation, from rather low levels of users to steadily increasing numbers, a potential conflict inherent in the National Park statutes was exposed. Park managers began to realize that while they were carrying out their mission of providing for the enjoyment of increasing numbers of people, they were doing so perhaps at the expense of protecting the integrity of their second mission—the protection of the parks' natural resources. The fragility of these "Temples of Time" became manifest as hordes of users continually descended upon and inflicted damage on them. As a result, park managers began to ask themsleves, "how many visitors are too many?", and "how can we manage for the visiting public while simultaneously providing optimum stewardship of these unique lands?" At this point in park history, the dilemma between the two thrusts of the National Park Service mission became evident.

## True Park Experience

The apparent conflicting aspects of the National Park mission has led many scholars to scrutinize the concept of what actually represents "the true park experience" in America. This article identifies managerial strategies which have been adopted by the National Park Service in its effort to provide a balanced approach to carrying out the dual responsibility. A case in point referring to the role that research can assume in affecting management policy decisions shall also be included.

A contemporary spokesperson, Joseph Sax, has reflected upon what the true park experience should be. He advocates that preservation of the park resources must be the foremost concern of management. Furthermore, Sax contends that the style of and emphasis upon modern tourism deprives the national parks of their central symbolism: the preservation of unique natural resources.

In an effort to determine what the outdoor experience should be, the concept of recreational carrying capacity evolved. Various researchers such as Brandborg, James and Ripley, LaPage, Lucas, and J.A. Wagar were among the early developers of this conceptual model. More specifically, as stated by J.A. Wagar, recreational carrying capacity was "the level of recreational use an area can withstand while providing a sustained quality of recreation." (Wagar 1964).

Since 1964, recreational carrying capacity has evolved into a model consisting of both social-psychological and ecological dimensions which attempt to more precisely describe what a "quality" outdoor recreation experience is. Wagar expressed the social-psychological dimensions of recreational carrying capacity

in terms of user satisfaction. Numerous researchers have attempted to measure the impact which increased user density has upon the quality of an outdoor recreation experience. The question of "how many is too many?" before a quality outdoor experience is altered is the focus of social-psychological carrying capacity research.

Research examining ecological carrying capacity has concentrated on the effects that recreational activity has upon soils, vegetation, water quality and wildlife behavior (Stankey 1980). A recent annotated bibliography by D.N. Cole and E.S. Schreiner (1981) summarizes research addressing recreational impacts on soils, vegetation, campsites and trails in backcountry areas.

A far more evasive area in need of further research is the study of human-wildlife interactions in outdoor settings. An extensive annotated bibliography by Catherine Ream (1980), is an attempt to summarize past research with respect to this topic. According to Ream, many wildlife species have become accustomed to people in national parks and other wildlife refuge areas. Research addressing the impacts of human-wildlife conflicts in our national parks has been on the increase since 1975. Studies concerning the National Parks have included: the effects of winter recreation on wintering wildlife; the implementation of mountain goat and bear management programs; and the study of the effects of visitors on elk populations. Concern for wildlife and its resistance to increased human intervention in our park backcountry areas will continue to be an area of growing interest. These carrying capacity studies are acutely linked to the environments of our National Park System since visitor impact in the park units is a contemporary management issue.

Katharine Pivecka

Katharine Pivecka

*Increasing numbers of people frequent backcountry areas.*

## The Grand Canyon Research Series: A Case Study in Carrying Capacity Research.

Between 1955 and 1959, fewer than one hundred persons were making the adventurous whitewater trip down the Colorado River through Grand Canyon National Park. With the completion of the Glen Canyon Dam in the early 1960's, the character of the river trip was tamed and thus it attracted increasing numbers of river runners on an annual basis.

When 16,432 persons were documented as floating down the Colorado River through the Grand Canyon in 1972, the National Park Service was faced with the prospect of making some crucial management decisions.

During the period from 1973 to

1976, scientific data concerning the streamside habitat and river ecosystems were collected on the Colorado River in the Grand Canyon National Park.

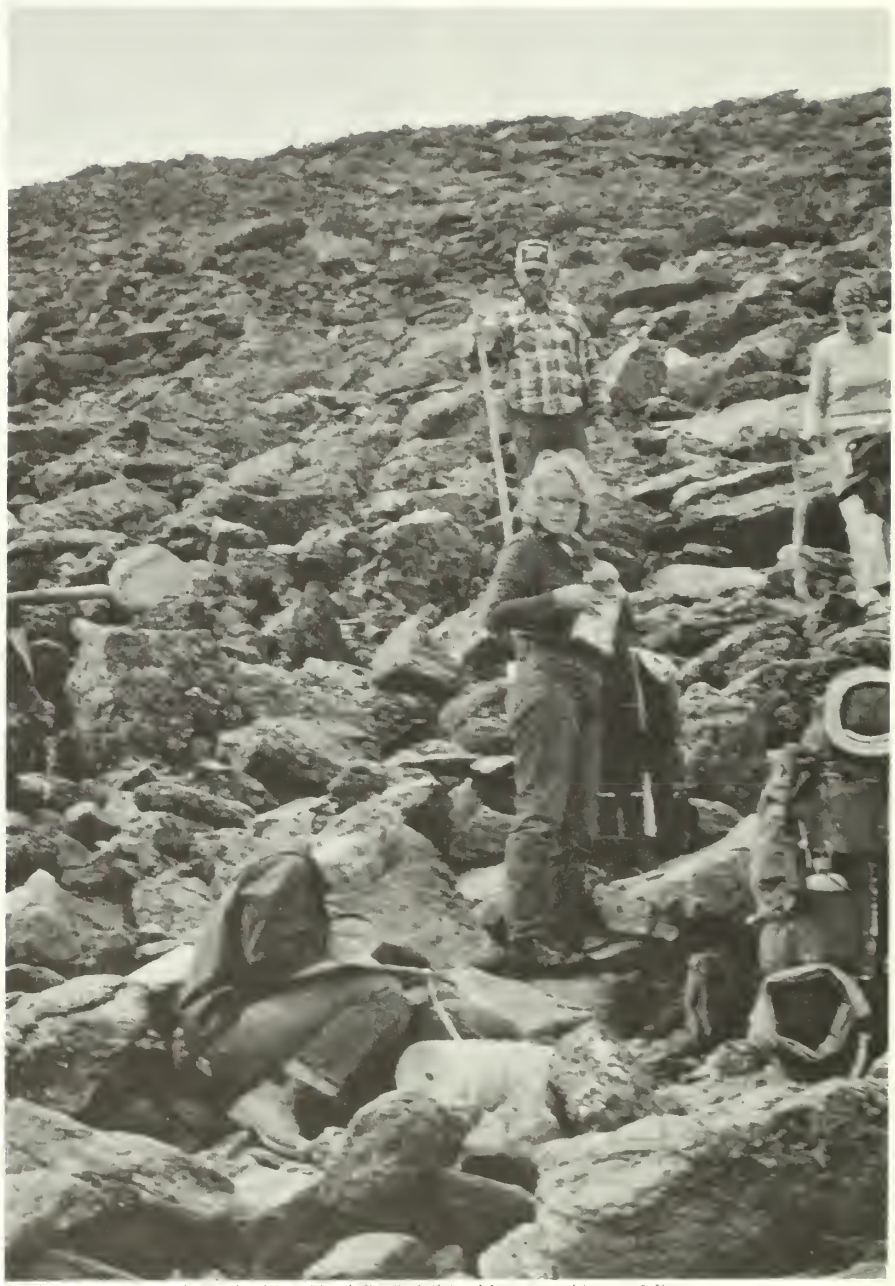
In 1973, Senior Research Coordinator Dr. R. Roy Johnson headed a multifaceted research series oriented to the investigation of the Colorado River experience. The various components examined in the research project included: sociological aspects of the river runners' experience; economic analysis of the river trip trade; environmental and ecological forces in the river and streamside zones; the standing of endangered and threatened species; inventories of campsites; human carrying capacities; use timetables; water quality conditions; flora and fauna inventories; and the development and ensuing condition of beach areas.

Findings from the Colorado River research series indicated that the Glen Canyon Dam had the major environmental impact upon the river ecosystem. To a lesser extent, visitor impacts were cited as also influencing the river system.

In terms of ecological impacts from increased visitor use along the Colorado River, Carothers and Aitchison (1976) and Howard and Dolan (1976) found a correlation between trampling, impacted vegetation and erosion at heavily used campsites. Carothers and Aitchison also found that hiking and picnicking caused degradation to the riverbank ecosystem.

Supplemental to the vegetative studies, Carothers and Aitchison found that increased human use caused the disturbance of adjacent river habitat of ground dwelling animals. It was speculated that such disruptions would bring about some behavioral changes in these animal communities. In terms of aquatic life, float parties had little overall effect upon the fishes of the Grand Canyon area.

Research conducted by Shelby and Nielsen concerning use levels and use patterns also focused upon the carrying capaci-



*Backpackers pause along the Lion Head Trail, White Mountain National Forest.*

*Katharine Pawelko*

ty concept and the estimation of what depicts a true wilderness float trip experience. Their findings concluded that density did not affect user satisfaction of a total trip experience. Yet, in terms of use patterns, a preference for oar-powered over motor-powered travel during the float trip was apparent. This specific study entailed a field experiment where river runners were asked to travel halfway through the canyon in oar-powered boats and halfway through the canyon in a motorized raft. Results from this study indicated that river floaters preferred oar travel to motors through the canyon. Individuals who preferred oar travel described this experience as more relaxing and peaceful than the hurried pace of a motorized float experience. The social-psychological research addressing the motor-oar issue lent support to the original draft Colorado River Management Plan, 1977. As stated in the plan, "The goals for managemant of the Colorado River in Grand Canyon will be to perpetuate the wilderness river-running experience and to attempt to mitigate the influences of man's manipulation of the river" (USDI 1977). Hence, the results from the Shelby and Nielsen study illustrated that the protection of a wilderness-type float trip experience was important to user parties. Nevertheless, in 1980, a rider was introduced on the National Park Service 1981 appropriations bill. This amendment prohibited the use of funds that would aid in a total motor phase-out decision. The motor-oar issue is representative of the critical importance that outdoor recreation research may have in influencing park management strategies. Shelby makes the suggestion that policy decisions should be dependent upon an interactive process which involves researchers, the public sector and resource managers.

The Colorado River research series represents an important step in park resource management. Information gained from research can aid in the management of a fragile park environment such as is illustrated in the Grand Canyon National Park.

## Contemporary Issues

The March 1972 Task Force reports of the Conservation Foundation, "National Parks for the Future" contained the following recommendation: "high priority should be given to research directed at finding the physical, ecological and psychological carrying capacity of every unit under the jurisdiction of the National Park Service. This information should be the basis for the establishment and enforcement of user quotas to prevent visitation from exceeding the carrying capacity of the environment."

This concern for visitor impacts on park resources has continued to be addressed throughout the National Park System. The recent "State of the Parks" report (USDI 1980), which was presented to Congress, was the first servicewide survey completed that identified both internal and external threats to the National Parks. Seventy-five percent of the reported threats were classified as being inadequately documented, with visitor-related activities identified as needing additional monitoring or research documentation (USDI 1980). The seventy-three threats reported in the parkwide survey were grouped into seven general categories: aesthetic degradation, air pollution, physical removal of resources, exotic encroachment, visitor physical impacts, water quality pollution and quantity changes, and park operations (USDI 1980). For the purposes of this report, Table 1 identifies the threats reported for aesthetic degradation and Table 2 identifies threats concerning visitor physical impacts. Under the category of aesthetic degradation, the problem of overcrowding and vandalism was the fourth greatest reported threat to the park units. Table 2 cites trampling as the greatest reported threat reported under the category of visitor physical impacts.

**Table 1 Percent and Number of Threats Reported by Subcategory for the Aesthetic Degradation Category**

| Subcategory | Percent | Number |
|---|---|---|
| Land Development | 14 | 153 |
| Utility Access-Powerlines, Pipelines, etc. | 11 | 116 |
| Roads and Railroads | 10 | 107 |
| Overcrowding and Vandalism | 10 | 110 |
| Urban Encroachment | 9 | 100 |
| Vista-Road Signs, Inholdings, etc. | 8 | 91 |
| "Other" | 8 | 94 |
| Mineral Surveys, Development, Extraction | 8 | 82 |
| Forest Disease/Pest Infestations | 7 | 73 |
| Grazing or Agriculture | 6 | 60 |
| Wildland Fires | 5 | 59 |
| Timbering | 4 | 40 |
| | 100% | 1085 |

(USDI, NPS 1980)

**Table 2 Percent and Number of Threats Reported by Subcategory for the Visitor Physical Impacts Category**

| Subcategory | Percent | Number |
|---|---|---|
| Trampling (Soil Compaction & Loss of Veg.) | 21 | 106 |
| Erosion (Shortcutting, Stream Banks, etc.) | 18 | 91 |
| Off Road Vehicles | 17 | 86 |
| Wildlife Harassment | 11 | 55 |
| Campfires | 10 | 51 |
| Habitat Destruction | 8 | 40 |
| Subtle Influences | 7 | 35 |
| "Other" | 6 | 30 |
| Cross-Country Skiing | 2 | 10 |
| | 100% | 505 |

(USDI, NPS 1980)

Katharine Pawelko

Katharine Pawelko

*Backpackers read posted information at trailhead before setting out along the Presidential Range in the White Mountain National Forest.*

A concern resulting from increased user trends and the expansion of tourism in the parks becomes evident from this 1980 survey.

The time is apparent for continued study regarding the effects of increased visitor impacts on national parklands. Related to this timely concern, a research endeavor is presently underway. Sponsored by a grant from the National Parks and Conservation Association, the faculty outdoor recreation research team at the University of Maryland at College Park has been charged with the task of, first, synthesizing existing theoretical and empirical work devoted to the concept of recreational carrying capacity and, second, developing a methodology for the estimation of this concept which can be implemented accordingly in the management strategies of the individual National Park units.

The National Park Service is supportive of this pioneering research venture, as many park managers are at issue in dealing with the impacts resulting from increased visitation trends. With the rising problem of resource scarcity, outdoor recreation research must now play a major role in aiding the policy-maker to implement sound long-term resource management decisions. The National Parks and Conservation Association-sponsored project is an attempt to bridge the gap between the outdoor recreation researcher and the park resource manager.

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# Solving Park Problems: Developing a Social Science Research Plan

*by Gary E. Machlis, Ph.D. and Edwin E. Krumpe, Ph.D.*

Park managers are increasingly called upon to make difficult decisions that involve and influence a variety of people, organizations and institutions. Parks are "social creations," and it should not surprise us that much of park management is people management. A wilderness ranger may contemplate a new backcountry policy to deal with overcrowding. A state park director may face closure of a park due to budget difficulties. Urban recreation leaders may need to revise their programming as the local community changes.

Sociological information can be a distinct advantage in solving such park problems, and in some cases is a prerequisite for action. Since the 1950s, sociological studies dealing with urban, regional and national parks have increased dramatically. Park managers have an increasing "need to know"—about their visitors, staff, local community, and nation.

The problem is that there are so many different kinds of information that social scientists could gather for park managers. Today's manager is faced with determining what kind of information is needed to solve park problems, and how and when research studies should be conducted. A solution is for park staffs to develop a plan to guide the allocation of research money and effort. The goal of such planning is to ensure that usable knowledge is obtained. In this article, we describe the necessary parts of a social science research plan, suggest a process for developing such plans, and discuss their advantages to park managers.

## What is a Social Science Research Plan?

A Social Science Research Plan (SSRP) is simply an organized, written strategy for acquiring sociological information useful to park management. The plan should demonstrate the social science needs of the park, derived from management policies, legal requirements, and park goals and objectives. It should provide a set of criteria for prioritizing information needs and evaluating research proposals. In addition, it should provide a systematic program for implementing necessary research. The SSRP serves as an advisory document to park managers.

## Benefits of A Research Plan

The benefits of an SSRP are many. Accurate and useful information, available when decision-makers need it, can increase efficiency and the quality of decisions. For example, constructing new visitor facilities or resolving a major resource problem may require information on visitors' desires and behaviors prior to management action. The SSRP can help ensure that the right information is available at the right time.

Another benefit is that an SSRP may improve the accountability of researchers. By prioritizing critical information needs, the plan will favor those research projects designed to produce the most needed information. Researchers working with the park (or interested in doing so) will be encouraged to align their research efforts with the needs of park management.

A third benefit of an SSRP is that it will enhance long-term planning. All planning—program, fiscal, facility, resource or personnel—can be no better than the information on which it is based. For example, studies of recreation demand may be needed for facility planning, and a job satisfaction survey may be a necessary part of personnel planning. An SSRP helps focus research efforts on important issues.

Finally, an SSRP plan can be useful in soliciting research assistance from outside institutions and agencies. It is not uncommon for universities and other organizations to have particular expertise and support for certain types of research. Faculty and graduate students are often looking for worthwhile research projects. With an SSRP in hand, the park manager can provide these institutions and researchers with a list of important research topics, and identify those individuals who might be interested, willing, or able to provide help.

## Contents of a Social Science Research Plan

The plan need not be a lengthy document, yet several components are necessary. First, it should include a list of the park's social science needs. Does a particular section of the park receive heavy vandalism, and no explanation is available? Is the number of visitors per year an important figure for budgeting, yet no accurate information exists? These information needs should be stated as clearly as possible in the plan.

Second, the plan should include some evaluation of the identified research problems. Which ones are most critical? Which require immediate action? For parks with numerous needs, a prioritized list should be part of the plan. A final component should be a schedule for implementing the research. It should include a short-term schedule for proposed projects (dates for starting, completion, and delivery of information to managers), as well as a long-term schedule of what research is necessary over the next five years. Recommendations for funding sources and available assistance also can be part of the document, along with a list of those involved in the plan's preparation.

## Procedures for Developing an SSRP

Several steps are necessary to develop an SSRP. A basic outline is provided below.

1. Park management should conduct or commission a review of all social science research specifically relevant to the park. This would include graduate students theses, special surveys, unsolicited research, broader studies that include data on the park, historical reports, and program evaluations. This literature review inventories the amount and type of information that is already available.

2. A planning team is assembled. Each organizational unit of the park (resources management, visitor services, administration, maintenance, and so forth) should be represented. A trained scientist, with experience in applied social science and recreation management should be part of the team. Such expertise is often available through universities or other public service agencies. Citizens' groups and the general public might also be represented on the planning team.

3. The planning team should identify management issues and problems. Staff members might be asked: What information about people do you need to do your job? In addition, legislative mandates, court orders, management policies, and capital development plans might be reviewed. Public input such as hearing records and letters are also valuable sources.

4. Once identified, the issues and problems should be prioritized based on three major criteria: How critical is the problem? How useful will the research results be? How feasible is the research project?

Figure 1 provides a sample checklist that the team might use in evaluating possible research projects. In a small park area with few research needs, this kind of checklist could be used to "screen out" inappropriate projects. In areas with many needs and numerous proposals, the list could be used to give proposed studies a numerical score and ranking. In any case, the park manager can reasonably require the social scientist to respond to the questions in Figure 1 prior to beginning any study.

**FIGURE 1**

**Examples of Criteria for Evaluating Social Science Research**

### Is the Problem Critical?

1. Is the study required by legislative mandate or court order?
2. Would information from the study be valuable in an anticipated lawsuit?
3. Is the study needed because of an identified threat to human health, safety or visitor experiences?
4. Is the study critical to the preservation of natural or cultural resources?
5. Will the information from this study lead to potentially significant savings of funds?
6. Does the study relate to a problem that is presently, or could reasonably be expected to become, highly controversial?
7. Is the study needed to provide information for a specific park program?

### Will the Results be Useful?

1. Can the need for information addressed by the study be adequately met in other ways?
2. Will the study duplicate work that has or is presently being done by someone else?
3. Will the study results help improve visitor experiences? If so, how?
4. Will the study results help improve the management of natural or cultural resources? If so, how?
5. Will the results be provided to managers in time to be used in decision-making?
6. Will the study results be useful in addressing more than one management issue?
7. Does the study have significant scientific value apart from its application to park management?

### Is the Project Possible?

1. Is there sufficient time and money to successfully complete the study?
2. Will the study have any unacceptable impacts upon natural or cultural resources of the park?
3. Will the study have any unacceptable impacts upon park visitors and/or staff?
4. Can sufficiently accurate data be collected?
5. Does the investigator have the expertise to successfully conduct the study?
6. Is the design of the study scientifically sound?
7. Does the design of the study meet all legal requirements for collecting data?

Adapted from "A Suggested Strategy for the Management and Planning of a Sustained Problem of Social Information Acquisition at Olympic National Park" by Darryll R. Johnson and John Aho. Unpublished report, Pacific Northwest Regional Office, National Park Service.

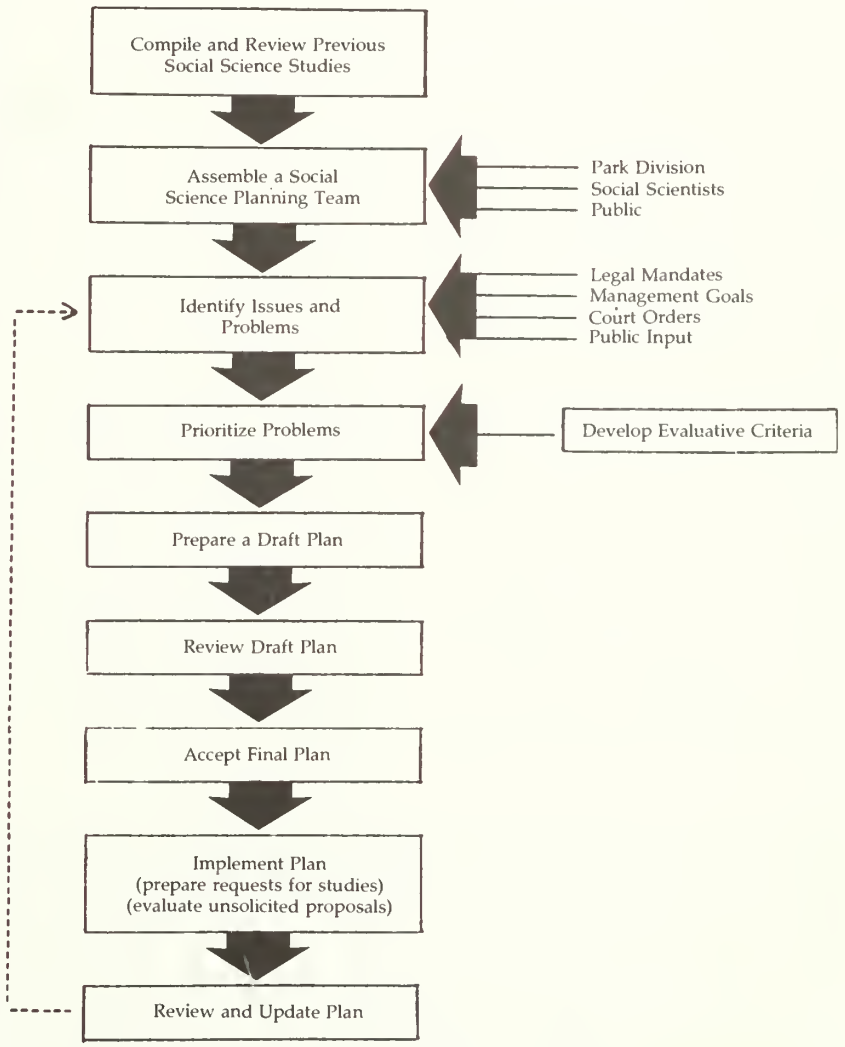
5. The team then prepares a draft SSRP. The draft includes the prioritized list of research needs, a schedule of proposed projects, recommendations for possible research strategies or methods of collecting data, and possible sources of funding and assistance.

6. The draft plan is reviewed by the chief administrator of the park, as well as by other selected park staff. Omissions, corrections and suggestions for improvement are provided to the planning team. The final report is prepared and sent to the chief administrator for approval.

7. The plan is officially accepted. The highest administrative level of the park should endorse the plan. Although this may not be a commitment to carry out all of the plan's proposals, it should be a commitment to follow the recommendations whenever social science research projects are being considered.

After the plan is accepted, it is used in preparing requests for research projects and in evaluating unsolicited research proposals. Since the information needs of park management will change over time, the SSRP will need to be reviewed and revised regularly.

**FIGURE 2**
**A Process to Develop a Social Science Research Plan**




## Conclusion

The park managers of the 1980s, faced with smaller budgets, more demand for services and increasing responsibilities, need useful and timely information to do their jobs. Social science research can often provide such usable knowledge, but the occasional thesis project, unplanned survey, or single research study is not enough. To be useful, social science must be organized and planned in advance to meet the needs of managers. This requires park professionals to play an active role in setting research agendas, and to develop a working partnership with social scientists. A social science research plan is a necessary, beneficial and feasible tool in solving park problems.

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# Training Resource Managers: An International Program

*by John Titre, Leslie M. Reid, Philip McKnelly, Allan S. Mills, and J. Martin Goebel*

Developing nations throughout the world are recognizing the value of identifying, evaluating, and protecting strategic natural resources. However, there are also increasing demands for public access to these areas, especially those close to population centers. This places the professional resource manager—the official charged with resource stewardship—in an embattled position.

The Cauca Valley Corporation (CVC), headquartered in Cali, Colombia, is one of the many resource agencies that is aware of the need for assistance in meeting new challenges arising from growing environmental pressures. CVC has jurisdiction over 2.2 million hectares, including two national parks. Resource problems include uncontrolled forest conversion, erosion, wildfires, flooding, and soil salinity.

Based on informal talks by former Peace Corps volunteer, John Titre, with CVC officials and Texas A&M University's (TAMU) Department of Recreation and Parks, it became obvious that there was interest in exploring a comprehensive planning and management approach to the solution of natural resource problems. The Department was independently developing an eco-development training program, and looking for an operating agency to cooperate with to test the approach.

The eco-development approach incorporates social, economic, and political objectives utilizing ecological information as a base for decision-making. This is in contrast to outmoded approaches which treat resource problems as isolated situations with little or no relation to other social, economic, and political issues.

## Initial Workshop at Texas A&M

In December 1980, Texas A&M University hosted a workshop in response to the request from the Cauca Valley Corporation to conduct an initial eco-development training program. Leslie M. Reid, Head of the Department of Recreation and Parks, invited the following participants: Nelson Melendez, Executive Director of World Leisure and Recreation Association (WLRA); Philip McKnelly, Chief, Recreation, Interpretation, and Environmental Education at Land Between the Lakes (LBL) of the Tennessee Valley Authority; Donald Warder, Head of the Park Administration Department, University of Wyoming; and Luis Ferrate, then an Environmental Analyst with the Guatemalan government; and interested faculty and students to a preliminary planning workshop.

Written materials were received from the National Park Service International Affairs Branch, the Center for Strategic Wildland Management at the University of Michigan, and UNESCO'S Man and the Biosphere Programme. Additional documents such as the World Conservation Strategy (IUCN, WWF, UNEP) and Global 2000 Report to the President (CEQ) served to orient participants to priorities for training.

Workshop conclusions were: 1) training should be targeted for mid-level managers, 2) training should be done in-country, and 3) an analysis of local problems should be conducted prior to implementing a training program. At the close of the workshop, an informal agreement was prepared between the representatives of the Department of Recreation and Parks at Texas A&M University, Land Between the Lakes of the Tennessee Valley Authority, and the World Leisure and Recreation Association. This agreement consisted of a statement of purpose and major goals for the proposed eco-development training program.

## A Strategy is Developed at Land Between the Lakes

Approximately five months after the Texas A&M Workshop, Dr. Philip McKnelly organized a second session involving many of the same participants at Land Between the Lakes, TVA's resource demonstration area. This facility offers a field setting from which to draw appropriate examples of integrated resource management in addition to recreation and environmental education practices.

At the conclusion of this meeting, specific roles were defined for the three major parties of the eco-development training agreement: TAMU, LBL, and WLRA. WLRA offered to coordinate the training and communicate directly with CVC administrators in Colombia. The TAMU Department of Recreation and Parks agreed to prepare training materials and provide the necessary instructors. LBL agreed to open its demonstration area for short-term training of resource managers from abroad. In addition, this workshop produced: 1) a tentative course curriculum, 2) a schedule for carrying out the initial Colombia training course, and 3) a

preliminary budget for that project.

In lieu of an in-country needs assessment for the Colombia training, a continuing dialogue was carried on with CVC administrators to refine program content for a ten-day course. It was determined that participation would be made available to ten watershed managers from CVC, ten recreation planners from other agencies in Cali, and five participants from agencies in Latin American countries other than Colombia.

Course participants came from various disciplines including forestry, agronomy, biology, architecture, geography, and the social sciences. As resource managers, their responsibilities were equally diverse with several acting as watershed planners and managers, and others as foresters, wildlife managers, recreation specialists, park administrators and educators.

## Training in Colombia

The Colombian course, entitled "Planning and Management of National Parks and Protected Areas," was conducted November 15-24, 1982, at the San Emigdio Training Center near Cali, Colombia. Instruction was provided by four U.S. instructors (John Titre, Philip McKnelly, Allan Mills, and Martin Goebel), and one foreign instructor (Mercedes Corrales of Mexico). The CVC Training Center Coordinator, Jorge Fandino, and three CVC staff members also assisted. Twenty participants attended, and a majority of them also subsequently spent an additional two days visiting Purace National Park near Popayan as guests of Superintendent Celendonio Rozo.

Following is a summary of the training components considered most useful to the course participants.

## TVA Example of Integrated Resource Management

Three separate slide-talks showing examples of resource management, recreation, and environmental education at Land Between the Lakes were presented. Successes as well as failures were discussed with the participants. Land Between the Lakes, a 60,000 hectare peninsula of mixed forest and farmland, provides a microcosm of sound resource management exemplifying TVA's original intentions "... to provide for reforestation and proper use of marginal lands."

## Wildland Management Categories

In an attempt to address their respective roles and needs, Kenton Miller's matrix on the "Alternative Categories for Management of Wildlands" was introduced to the participants. An extended slide presentation was used to demonstrate the various objectives for conservation of alternative management categories.

In addition, a short explanation was made of the biosphere reserve concept of the Man and the Biosphere Programme, another wildland management category that fits well with the eco-development approach.

Following each session, participants engaged in lengthy discussions on the adequacy of

Alan Mills, Texas A&M Univ.

*Colombian participants developing one component of an operative plan.*

each alternative in their own countries and regions.

## Management Unit Report

The management unit report used in this course was designed to enable participants to more systematically evaluate and communicate specific information on the condition of the physical setting and user/recreation experiences. This technique was developed and successfully applied at LBL by Kenneth Chilman, Department of Forestry, Southern Illinois University. It is brief and focuses on: 1) perceived problems, 2) expressed needs, 3) stated objectives, and 4) financial constraints.

After participants were divided into groups of four, an ecological inventory was developed on base maps. Specific information was gathered on climate, geology, physiography, drainage, soils, vegetation, fauna, and land-use. In addition, visitor information was incorporated from a two-page hypothetical user survey. A final section of the management report included alternatives and recommendations for managerial action. Each group presented the findings to the other participants who, in turn, evaluated them. Reports were displayed for the remainder of the course as products of group process.

## Demonstration Areas for Environmental Education

Ways were suggested for using demonstration areas as a means of diffusing information on land management practices such as terracing, alternative cropping systems, biomass utilization for energy, and other practical technologies. The "El Topacio" site in Los Frallones de Cali National Park provided an ideal setting for illustrating the demonstration area concept by conducting environmental education demonstrations. Participants then discussed the idea of demonstration areas in their watershed units as a means of involving local communities in environmental problem-solving.

## Operative Planning

An operative plan is a type of mini-management plan which can be developed relatively quickly and must be revised periodically. Operative planning is a recent concept, utilized by Craig MacFarland and Roger Morales at CATIE in Turrialba, Costa Rica. It can be used as a tool to ensure that existing management plans are carried out, or it can be used in lieu of a full-scale management plan when one is lacking.

Course participants were instructed on the steps involved in developing an operative plan. They were then divided into three groups to develop three major components of an operative plan for a regional park in Chile administered by a participant from that country. The Chilean participant then took responsibility for integrating these components into a completed operative plan, and agreed to send a copy to all other course participants after returning home.

## Visitor Needs Analysis

Visitor needs assessment was included in the course because of a request received prior to the course from an employee of INDERENA, the agency with primary responsibility for managing Colombian national parks. Visitors needs assessment is a process in which needs of visitors are identified and priorities determined. Participants were introduced to the methodology of survey questionnaire development and administration so they could assess visitor needs for purposes of more effectively planning trails and other developments.

A trail leading from the "El Topacio" visitor center in Los Farallones National Park was used as an example. A questionnaire was developed to assess the different attributes desired by visitors using this trail. Rain precluded involving all participants in the data collection exercise as scheduled. However, participants employed at the park agreed to later complete the data collection, and arrangements for subsequent analysis were agreed upon with Texas A&M instructors.

## Plans for Future Training

A comprehensive evaluation of the Colombian training was conducted during the final day of the course. Results showed an overwhelming interest in this and other types of in-country training on an annual basis. Course participants also provided constructive feedback on ways to improve the organization and content of future courses.

Agencies in other Latin American countries have also indicated an interest in training programs similar to the one conducted in Colombia. An in-

John Titre, Texas A&M Univ.

*Course participants study written materials at the CVC Training Center.*

Martin Goebel, Texas A&M Univ.

*Training course participants involved in an Environmental Education exercise with course instructors at Los Farallones National Park, Colombia.*

country needs assessment for training was carried out in Costa Rica by two authors of this report in response to an expressed interest by the Costa Rican National Park Service. Conduct of the requested Costa Rican training course is contingent on availability of funds.

In addition to in-country courses, the eco-development training program has other training objectives. One of these which is currently underway is an internship program at TVA's demonstration area at Land Between the Lakes. LBL has agreed to make internships available to a limited number of program participants in addition to other qualified persons. One person who participated in the Colombian training course is now completing a three-month stay at LBL and another participant has applied to attend later this year. Others who have completed LBL internships include persons from Spain, Chile, and Costa Rica. WLRA is responsible for screening applicants for internships, although LBL makes the final decision on acceptance. In some cases university credit can be arranged for internship participants by the Department of Recreation and Parks at Texas A&M University.

In the future, the eco-development training program plans to provide materials and technical assistance to universities and professors in Latin American countries who are developing curricula related to environmental education and resource conservation. It is also the intention to initiate cooperative research projects with Latin American agencies for whom training courses are provided. Another proposed component of the eco-development training program is a seminar on training of resource managers to be alternately hosted by Texas A&M University's Department of Recreation and Parks and TVA's Land Between the Lakes training center.

Further information on any aspect of this eco-development training program can be obtained by contacting the following: Dr. Leslie M. Reid, Head, Department of Recreation and Parks, Texas A&M University, College Station, Texas 77843; Dr. Philip McKnelly, Land Between the Lakes, Golden Pond, KY 42231; Mr. Nelson Melendez, World Leisure and Recreation Association, 345 E. 46 Street, New York, NY 10017.

# Are Your Data Providing Information?

*by Linda Caldwell and Chrystos Siderelis, Ph.D.*

Accountability and technology: the need for more information and the means to provide it. Producing and selling information is one of the nation's fastest growing and most lucrative industries. Why is it, then, that personnel often bemoan the fact that they don't have enough information? Often, it seems, information needs are not assessed—resulting in too much data but too little information.

The United States Forest Service (USFS) felt there was a conflict between the utility of recreation data collected by forest personnel and its informational value to forest and district supervisors. Therefore, as part of a multi-phase study to examine data collection procedures for estimating recreational use on forest lands, the USFS decided to first examine the information needs of personnel who manage recreational areas on forest lands. Two issues were recommended for study: (1) What are the recreation information needs of forest and district personnel responsible for administering USFS lands?, and (2) What is the utility of currently provided information on dispersed areas to forest and district personnel in light of their responsibilities? These two issues provided the focus for a study completed by Caldwell and Siderelis (1982).

There were three outcomes of the study: (1) information needs of forest personnel were identified; (2) suggestions and concerns about the existing Recreation Information Management system were identified; (3) an investigatory procedure was developed through which information needs in other park management agencies may be assessed.

## Case Study Procedures

Because subjective opinions, insights, and observational information were needed, a structured case study approach was selected as the investigatory procedure. Case studies involved asking a series of questions from a checklist to each person interviewed, and gathering supplementary background information from forest and district office records and files. Three forests were chosen for study: Allegheny National Forest (Pennsylvania); Daniel Boone National Forest (Kentucky); and Superior National Forest (Minnesota). Ten additional field surveys of a limited scope were administered at western U.S. forests to delimit the geographical bias of the three Eastern case studies.

The information we collected was analyzed by a "case analysis" method suggested by Patton (1980). Briefly, case analysis involved the critical organization of interview data into categories for comparative investigation.

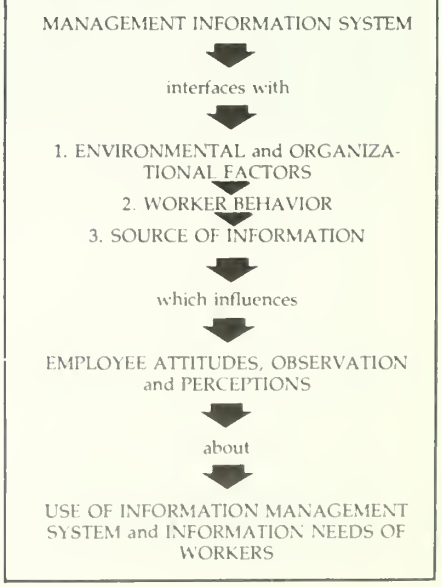
The case studies were conducted during June, July, and August of 1981 and eighteen USFS personnel from the three forests were interviewed in-depth.

## Assessing Information Needs—A Paradigm

In order to assess the information needs of USFS personnel, a theoretical model developed by Lucas (1980) was adapted for use in organizing the data collection effort. The resulting paradigm provided the means for identifying and exploring factors that influence information needs. Further modification of the paradigm was completed after the Forest Service project. To avoid redundancy and to conserve space, only the final revised paradigm is displayed in Figure 1. As is described in this figure to fully comprehend the need and use made of information, many aspects of the organization, its employees, and the existing information base and system for managing it must be considered.

Past research indicates that an employee's attitude toward the input of data into a computer and the quality of computer products from an information system is a good predictor of the use and satisfaction with that system (Lucas, 1980). Attitudes or value perceptions deal with the worth of the information system relative to the accuracy of data fed into the computer, and procedures

**Figure 1. Paradigm for Assessing Management Information Needs**



are devised to operate the information system by the user. That is, the less faith employees have in a system and the more cumbersome it is to operate the system, the less likely they are to utilize information from the system and feel their needs are being met (King and Rodriquez, 1978).

The factors that influence a person's attitude toward the system can be organized into three categories: environment and organization, worker behavior, and source of information. Each of these factors are briefly examined.

## Environmental and Organizational Factors

Information needs are influenced by the environment surrounding a work organization and the type of work setting in which one is working (Radford, 1977; Hunter and Crook, 1981). Some examples of environmental and organizational influences considered in this study were: (1) internal organizational elements, such as job positions and responsibilities; (2) physical, economic, or technological elements, such as fiscal and manpower constraints; and (3) outside forces, such as political and regulatory concerns.

An additional factor is top management support and attention (Lucas, 1980). Of course, top management controls the resources for an effective management information system. But, more importantly, top management must support the information system, for example, through training sessions on the uses and application of computer-products from the management information system.

Perhaps the most important consideration here would be to insure user involvement in the design and/or modification of the information system. A successful system is much more likely to emerge if those who use the system help in designing it.

Determining whether the information system accomplishes agency goals effectively and efficiently was beyond the scope of this study, but is nevertheless an important consideration.

## Worker Behavior

The way in which an employee approaches a problem or makes a decision influences the worker's need for information. For example, some individuals like quantitative data while others prefer qualitative data. Therefore, the decision-making style will affect the need for information and the satisfaction of information provided by the management information system (Radford, 1977; Lucas, 1980; Murdick and Ross, 1976).

Personal and situational factors also influence information needs. Age, education, length of time in the agency, etc., seem to be important in determining whether or not information is satisfactory to a manager (Lucas, 1980). For example, a young, new manager may have different information needs than a veteran manager.

## Source of Information

Technical characteristics of the management information system must be considered in examining information needs. One consideration is the accessibility of the data—are data available in report form or from a computer terminal screen? Another concern is how old are the data? Year old data may be acceptable in some situations but unacceptable in others. The accuracy of the data is another concern. Again, accurate data may be necessary at times, but for other purposes semi-accurate data may be good enough. Other questions regarding the technical aspect of an information system are: How long do workers have to wait for reports? Is the computer-product readable, interpretable, and practical?

Another major area that must be assessed when examining information needs is whether or not personnel are receiving the kinds of information they need. Does the information provide the right answers to management questions or inquiries? Even though the data may be timely, accurate, and interpretable, if they don't answer questions, they are useless.

Are there other sources that can provide information? If the information system does not supply needed material, but if that information can be easily obtained elsewhere, the deficit in the current information system may not really matter.

## Result From the Forest Service Study

Rather than discuss the results for each of the discrete categories presented in the paradigm, results are summarized and discussed in an integrative fashion.

Out of our interviews with the eighteen forest and district supervisors, we found more similar responses to questions we pose than different ones. Of initial importance was that all individuals felt recreation data on visitation were vital in performing their responsibilities.

Generally, we found that most supervisors were satisfied with some of the data on visitation and site characteristics they were receiving from the Washington Office. BUT, there were informational needs voiced and many of these needs were considered very important.

The U.S. Forest Service uses the Recreation Information Management (RIM) system to collect and process data on recreation use at forested recreational sites. Basically, forest technicians estimate or count visitors to recreational areas and sites. They then compile this data onto RIM forms which are sent to the Washington D.C. office where the data are aggregated and processed, and eventually sent back down to regional forest offices, and then on to forests and districts. We did not set out to evaluate the RIM system, but found that it was impossible to talk about information needs with foresters without discussing the RIM system since RIM is the primary data base.

Forest Service personnel in the forest and district offices periodically consult the RIM system to retrieve information on (1) the number of developed recreation sites, (2) reporting recreational usage numbers to the media, and (3) upward reporting of recreational usage internally within the Forest Service.

The RIM system provides an important feature that is seen as responsive to the information needs of forest supervisors—the special reports. Originally, these reports were requested by individual forest and district officials to answer specific management questions. However, many of the 35 or more special reports have been incorporated into the RIM system and are routinely generated and distributed to all forest and district offices.

Another finding was that each forest utilized a supplemental information system to maintain data on visitor use. These supplemental systems were different for each of the three forests, but provided the same types of information. Supplemental systems were accessed more frequently than the RIM system and were perceived to be more responsive to forester's information needs. Also, the information derived from supplemental systems was perceived as being more accurate than the RIM system. The Allegheny National Forest utilized a supplemental system called "Advent," while the Superior National Forest relied on the Wilderness Permit System for supplemental information.

Despite the RIM system and the supplemental information systems, the foresters we interviewed relied on verbal, informal communication as their primary source of data. For example, if a manager needed to know how much visitor-use was occurring at a certain forest area, he or she would talk with someone he or she trusted who worked in that area, e.g., technician, volunteer. The information derived from informal conversations was viewed as more timely and more accurate. (In addition, several of the foresters were more comfortable with verbal data rather than a computer printout.)

Forest personnel also received information from a variety of other sources, including: travel and tourism agencies; fish and wildlife departments; departments of transportation; local retailers such as backcountry outfitters; or university personnel doing studies at the forest.

There were three main technical concerns regarding the information provided from the RIM system: (1) the turn-around time from the input of the data to the receipt of processed data took a year, which was too long a time in most cases; (2) the data were felt to lack credibility due to mistrust in data collection procedures used to input data into the RIM system; and (3) the RIM system was described as cumbersome and complex to use—a common complaint was that there were "reams of RIM."

Perhaps the most interesting finding of this study was the type of information forest personnel felt they needed and weren't receiving. The most desired information was "people" information about visitors, which included: (1) sociological and demographic data and trends; (2) what types of experiences did visitors desire, and were they getting those experiences; (3) what level of development was preferred for facilities and areas; (4) how did people view current management practices, and how would they view changes in those practices; and (5) what do the future market and trends in forest recreation use look like?

Other information needs cited were: site specific information;

more accurate data on dispersed-use recreational areas where visitor use was increasing, or on areas targeted for management impact assessments; standardization of data; and, more training in the use of the RIM system and application of computer-produced products.

## Discussion

We found that technicians who collected the data did not put much energy and care into data collection as they would have if (1) top management were more fully convinced of the value of RIM products, (2) if they felt that the data they were collecting would help answer the informational needs of foresters, and (3) if they trusted the accuracy of data collection procedures, that is, better visitor estimation procedures. Chances are, if these data collectors were part of the initial RIM design process, some of these problems would not exist.

Training opportunities on the use and application of the RIM system would serve several purposes. Training would clear up some confusion regarding the complexity of the system. As an indication of management support, training would hopefully open avenues of two-way communication regarding concerns about the information system. Also, training would serve to instruct foresters in applications of RIM for planning and controlling management purposes; it was difficult for some personnel to see how the data would be helpful even if they were accurate. In addition, training could also help to ease employees' fears about using computer information. It is possible to shape employees' decision styles so that they feel more comfortable with quantitative data.

Given the strongly voiced need for "people" information, every effort should be made to avail reports and information about visitor forest recreation-use trends and desires to forest personnel. To be successful, however, top management must insure the usage of computer-produced products as well as assist personnel in utilizing the reports in planning for and controlling visitor-use of forested recreational areas and sites.

Many of the foresters interviewed in this study desired more standardized information and units of measure (regarding cost reporting and estimating visitor use) for comparing their forest and/or district to others. This concern is interesting because we found that forest personnel were actually moving away from standardization in using their own supplemental information systems instead of the RIM system. One suggestion would be to determine what features of the supplemental systems, as well as the special RIM reports, were desirable. Complementary features could then be incorporated into the existing RIM system. At the same time, however, it would be necessary to eliminate the unnecessary information which caused confusion.

This review process would help in the standardization procedure. It would also help to clarify what information in the complex RIM system was not utilized and necessary. Additionally, this process would help to contain the growth of the special RIM reports. Although RIM reports are seen as providing useful information, they are growing in number and may soon be as complex as the original RIM system.

## Application of the Paradigm

Assessing the utility of currently provided information and unmet information needs is a process that should occur regularly in a park organization. Information systems and workers grow and change—what was good 5, 10, 15 years ago may not be effective now.

It is critical to periodically assess the information requirements for worker responsibilities and decisions. That is, examining the technical aspects of an information system will not provide a complete picture. Each agency will have various organizational and worker related problems that will affect information needs.

Asking questions of employees would be a good way to begin to assess the utility of current provided information and to assess other information needs. The following are some examples of questions, but each agency will need to personalize them to reflect its individual nature and situation.

1. What are the organizational and environmental features of my agency? Are there any unique features that will affect information needs of workers in conducting responsibilities?
2. Does top management support the use of the information system—how?
3. Who designed (modified)

the information system? Was there shared involvement by workers in the design?

4. What are the information users' primary responsibilities? In which of those responsibilities do they utilize information provided by the information system—why or why not? How often is the information used? How important is that information?

5. What is the decision-making style of the employees who use the information system?

6. What effect do age, education, and length of tenure in the organization have on the need and use of the information?

7. If employees do not get their information from the information system, where do they get it? Why?

8. What are the technical concerns of employees in using the information system?

9. What information needs remain unmet? Why?

Each of these questions may have a series of related sub-questions. Answers to questions can be analyzed using the case analysis method mentioned earlier and described by Patton (1980) in his book. This analysis should help to clarify and organize the finding of your study so that you can identify strengths, areas of management concern, and information needs of workers. Management can then continue to change and be responsive to worker information needs.

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# Computers in Academe

*by Patricia Farrell, Ph.D.*

At no time in the recent past has a new technology so influenced what and how we could effect the learning environment on this nation's campuses as the computer. The purpose of this article is to present a practical approach for the transition into the "Star Wars" type of future by focusing on micro-computers. We will explore the uses of micros in the teaching and research departments of academe.

## Historical Perspective

The computer resource has been available on campuses for many years: the early popular models since the 1940's. Only the boldest, some would add the strangest, of the faculty would venture over to the key punch machines at the computer center and risk making those fatal JCL errors. The computer was seen as a number cruncher - period. It was a machine on which one could move ahead from the hand-pulled calculator; later move to the electronic calculator; and finally one was able to handle those research problems requiring enormous storage and the ability to accept complex algorithms. Frustrating use of time was diminished—time to be used for other tasks. Just as faculty were becoming accustomed to the keypunch operations and were able to appreciate what graduate students were easily mastering, the card punch system became obsolete and data entry methods changed. First came the remote entry by phone hook-up. Finally electronic entry came to the campus with the keyboard and CRT (cathode ray tube) visual terminals. All units were essentially connected to a main frame computer or a smaller unit called a mini-computer, which has less storage capacity than the main frames and is unable to handle jobs with major complexity.

The major use of the computer, and certainly the first use for most people was to ask it to be a calculator. Statistical packages were developed and adopted by most schools. Users could log in on the main system and call up one of these packages. The favorites today are SPSS (statistical package for the social sciences) and SAS (statistical analysis system). As the user became more familiar with these packages, the technical part of the research process was simplified. The student researcher and faculty were now able to concentrate on the elegance of design and inference rather than struggle with summing rows and columns in such a cumbersome way. But woe be to that graduate student who could master the tool, yet fail to be cogent regarding what the "print-out" meant!

The scientific community was by far the heaviest computer user in the academic community of scholars. The university administration was quick to employ the computer in its management of data - payroll, student records, planning and development and, of course, budget management. It was the statistician's greatest joy. To the non-statistician the computer was a remote machine with little use in one's everyday life at the university.

In a separate part of the university, word processing was taking hold. Administrators were learning how to dictate on tapes

which then were removed from their recording devices and handed to the clerical team for transcription. Without too much trouble or fanfare, this transcription process moved from the printed page to the video page. Handling words, for the computer, was almost as easy as handling numbers. Thus, the word processing system evolved before the office understood about electronic word storage.

On many college campuses, the Education school was developing and implementing CAI labs (computer assisted instruction). The equipment at this time (late 1960's—1970's) was large, costly, and frequently dependent on one or two individuals to be technicians, teachers and proposal writers. Even though federal support was behind this effort, many of those labs today are gone and have been totally replaced with a new and quite different look. Much of the use of these labs dealt with drill and practice learning, and the real elegance of the computer lay undiscovered.

With the development of the micro-computer, many aspects of the high technology are right for the times. Perhaps most importantly is the cost. In 1980, one could purchase a micro—a processing unit, storage in abundance, a monitor and a printer all for under $3000. Clearly, the price was within range of most departmental budgets. Now the critical question came. What do we need them for? How can they assist with the instructional portion of the department? Do I need to learn programming skills and if so, what language is best?

By now the computer has the capacity to be more than the mega-calculator. It can be programmed to draw, to play music, to search and sort word files, design graphic presentations—all of which are but a small representation of its classroom use.

David Middleton, Penn State University

*Students plot data with a graphics board.*

## Suggested Uses of Computers

There are common classes to most curricula in the Recreation and Parks field. If a curriculum were to incorporate the use of computers into its classes, there would be no need to teach a separate computer course. It is this writer's contention that programming skills are not necessary for the majority of professionals entering the field. One must be able to talk to the programmer just as one needs to be prepared to discuss matters with the civil engineer and the landscape architect. But to gain the level of expertise required to program a computer to the needs of a professional office, it would require an enormous commitment of credits in the academic program. Each may wish to learn a small amount of BASIC just to have a sense of how much would be required, but the bottom line is to learn about software and its adaptable uses to the field. When all else fails, employing a programmer is the direction to go (this may mean employing one of your children or some other grade school child).

The following discussion is directed toward how a department might manage its teaching of computer literacy. It is suggested that space be donated for a computer laboratory because the learning curve for computer literacy rises dramatically when people have a chance to learn

from each other. It is also suggested that both hardware and software needs be considered in the budgeting process. This article addresses appropriate software which has wide application and excellent adaptability to many classes. It is not classroom-specific software but software that will be useful in any park and recreation agency.

## Step One

In whatever beginning classes the majors take, it would be appropriate to have a computer assignment. At some point in the discussion surrounding leisure behavior, video games will be a topic under scrutiny. This could be the perfect time to have students do two things:

1. Use a software package that tutors the students in uses of the keyboard (See Who Can You Turn To? #1).
2. Have a small supply of games (check with your local micro-users club) for students to play.

The students have now been forced to try the keyboard and hopefully have had some fun in the process. Although it is not recommended that the games portion of the lab get out of hand, it is necessary for the students to be at ease with the machine and have a beginning grasp of its capacity.

## Step Two

Now that the students have mastered the elements of the computer itself, it is time to require that their skills move upward. There is a small set of software that lends itself especially to the recreation programmers' interests, park maintenance interests, as well as some elementary program budget skills development (See Who Can You Turn To? #2). Software is currently available to introduce the learner to running a tennis draw, managing a swimming meet, setting up a reservation system and setting up round-robin tournaments (See Who Can You Turn To? #3). The program and leadership courses will find these packages useful.

A particularly fine piece of software provides the faculty member with a skeleton framework into which many learning styles can be programmed. The Shell Games software (See Who Can You Turn To? #4) put out by Apple provided an early opportunity for some creative drill and practice sessions for the students as designed by the faculty member. There are models for multiple choice tests, true/false testing and a chance to design a matching quiz. All that is required of the instructor is to modify the model itself to fit one's specific content requirements.

In addition, software for early work on budget planning, or any task requiring a spread sheet, is available from many different companies. Visicalc (See Who Can You Turn To? #5) is one of the best known programs. After a special orientation to the program and only a few critical command keys, the students should work well with this software. It is important to introduce this piece of software for a simple task, since later in the curriculum even more elegant use will be made of it.

## Step Three

Now the students are ready to put another skill into action. Most are required to prepare papers as part of their regular assignments. Almost every company has a script writing program. For the computer handling words is a simple task. Students should be knowledgeable about the word processing program capabilities. Thus, somewhere in the academic program, students should be required to handle at least one assignment using the word processing software. The Apple Writer program (See Who Can You Turn To? #6) is quickly mastered. Most script programs are similar, and it is the printer elegance that determines the quality of the printed output. A dot printer is adequate for a student lab requirement. If office use is also part of the computer's workload, then some variety in printers will be necessary.

Those who are fearful of computers tend to be so because of the keyboard. Also, there are those that resent having to perform technical work. The wise teacher indicates that typing skills are passe; it is keyboarding talent that is necessary. Be pragmatic, words are important. Many supervisors and executives believe that they will never need to use a computer. They are simply cavalier and incorrect.

## Step Four

Because of the nature of the work in the Recreation and Parks field, charts and graphic representation of ideas are familiar administrative tools. The students

David Middleton, Penn State University

*Computer labs significantly contribute to computer literacy.*

need to see how the computer can be used to generate this type of work at a fraction of the cost of employing the graphic artist, and it can be reproduced in a fraction of the time.

There are many software packages that perform well in aiding the writer to chart a visual representation of some data for reports or other purposes. The PFS Graphics program (See Who Can You Turn To? #7) is superb. It permits bar graphs, pie charts, and plots lines and curves. There are many places for this type of computer expertise to be demonstrated in the curriculum. Class work in administration and management, evaluation and programming are but a few areas where this could be an important addition to the classroom.

## Summary

If the curriculum has been successful in introducing the suggested steps and accompanying software packages to the students, the agency employing such students will be well along in having a staff with a suitable degree of computer literacy. Notice that nowhere has it been suggested that this process leads toward producing a computer programmer in the professional sense. If there are unique program needs on the part of an agency, then it is appropriate to employ a professional to do this task.

In the future, all professionals will have computers on their desks and will be operating most functions of the job with the aid of this technology. Universities must accept the responsibility to prepare students for tomorrow, not yesterday. A commitment is necessary to bring up to speed a small computer lab and provide an appropriate amount of software. As usual, the spark needs to be struck - the learning curve will almost take care of itself.

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*She has published articles, professional papers and has coauthored two books: THE PROCESS OF RECREATION PROGRAMMING and EVALUATION DYNAMICS.*

# Assessing Outdoor Recreation in the United States

*by H. Ken Cordell, Ph.D. and Lawrence A. Hartmann*

*". . . outdoor recreation is more important than ever in American life—as a fundamental expression of our national character, for its benefits to individuals and to society, and its significant contribution to the nation's economy."*

So concluded the Outdoor Recreation Policy Review Group in February, 1983. This group was chaired by Laurance Rockefeller, and was one of the most prestigious ever assembled to examine the fate of outdoor recreation in America. Outdoor recreation is not only important commercially and aesthetically, it is fundamental to our culture. Demand for outdoor recreation has continued its spiraling growth despite an oil embargo, recession, and high unemployment (see figure 1).

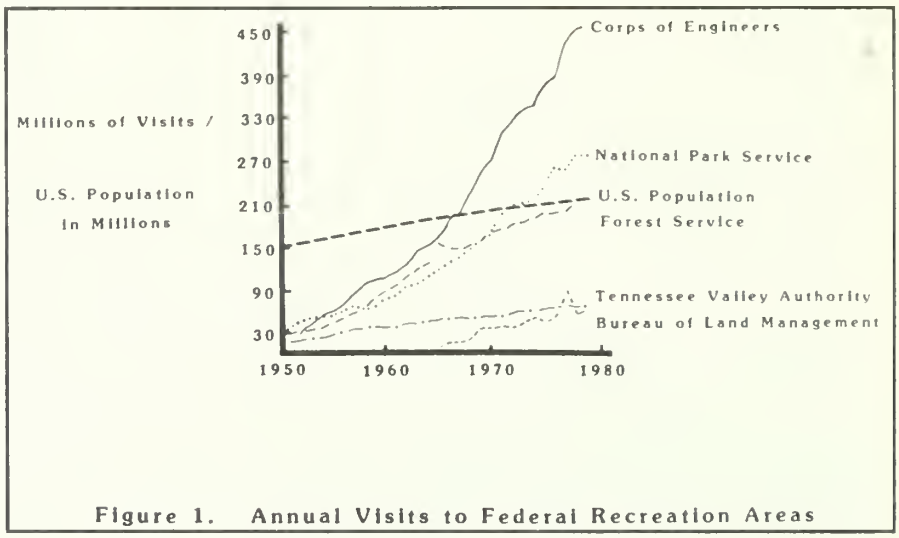


**Figure 1. Annual Visits to Federal Recreation Areas**

*SOURCE: Driver, B.L., and D.H. Rosenthall. 1982. Measuring and Improving Effectiveness of Public Outdoor Recreation Programs. Appendix 2: Use of Public Outdoor Recreation Opportunities, 1950-1979. Report of the Workshop on Outdoor Recreation Output Measures, Washington D.C.: Department of Human Kinetics and Leisure Studies, George Washington University.*

In the 1960's and early 1970's government at all levels responded to increasing demands for outdoor recreation with dollars, land, and development. But in the late 1970's and early 1980's these priorities have shifted and budgets for recreation declined. Several critical questions must now be addressed: Does government have an obligation to continue to expand public outdoor recreation opportunities? If so, how can government meet such an obligation? As competition for tax revenues grows, what must we give up? In future years, what recreation opportunities will people want most, and where and how will they seek them?

Responsible government agencies and private recreation enterprise must grapple with these questions and they must be responsive to changes in outdoor recreation wants and needs. A careful and comprehensive assessment of the current outdoor recreation demand and supply situation and recognizable recreation trends will help to identify these needs and define options for providing public outdoor recreation opportunities. In this article we explore the need for and problems associated with national recreation resource assessments. Our emphasis is on the U.S. Forest Service research program located in Athens, Georgia, aimed at improving outdoor recreation assessment methods.

## Change is Certain

This country's first comprehensive outdoor recreation assessment was provided in 1962 by the Outdoor Recreation Resources Review Commission (ORRRC). The major observations of ORRRC included:

- Outdoor recreation opportunities are most urgently needed near metropolitan areas.
- Considerable land is available for outdoor recreation, but it does not effectively meet the need.
- Outdoor recreation is a major leisure time activity which is growing in importance.

ORRRC projected how large outdoor recreation demand would be by the year 2000. Halfway through that projection period, we already see that actual growth in demand has greatly exceeded ORRRC's projections. But the significance of ORRRC's projections lie not in their accuracy, but in the fact that all indicators pointed to major changes, many of which have come true for both recreation demand and supply. Tracking these changes and iden-

tifying and projecting meaningful trends are essential to the assessment process. For example, some of the major recreation demand related trends since 1960 include:

- The U.S. population has grown by 53 million people and is shifting South and West
- Income and leisure have increased and recreation has become central to American lifestyles
- The market for outdoor recreation has become segmented into young, middle aged, and older Americans, and concern has shifted from "we" to "me"
- The average American is older
- We are changing from an industrial to a high-technology, communications society with more decentralized government, residence, and business.

Some of the major supply-related trends since 1960 include:

- The Bureau of Outdoor Recreation was created, grew, and has now been dismantled. This agency was responsible for coordinating and funding outdoor recreation planning, acquisition, and management.
- Several systems for preserving irreplaceable natural resources were created, including the National Wilderness Preservation System, the National Wild and Scenic Rivers System, the National Trails System, and National Recreation Areas. Other preservation systems, including the National Park System and the National Wildlife Refuge System, have been greatly expanded.
- Legislation was enacted to reduce air and water pollution and to protect cultural resources
- Federal expenditures for recreation increased from $75 million in 1960 to a high of $1.4 billion in 1980
- Federal and State governments acquired 12.6 million acres of recreation areas
- State park systems expanded from 6.6 million to 9.5 million acres
- Local government acres and areas for outdoor recreation doubled
- There has been tremendous growth in private commercial recreation enterprises and facilities including resorts, second homes, ski facilities, and theme parks
- Private land and water areas have been increasingly subdivided, closed, and access otherwise limited to the public. Almost 55 million acres of private farm, forest, and range have been developed for uses other than recreation
- Water impoundments have grown tremendously, including both reservoirs and small ponds.

U.S. Forest Service, Daniel O. Todd

*One major supply change since 1960 has been creation of the Wild and Scenic Rivers System.*

## Recent Assessment Activity

Several pieces of legislation enacted since 1960 require federal assessments of our national outdoor recreation situation. Public Law 88-29 directs the Secretary of the Interior to maintain an inventory of outdoor recreation needs and resources, and to develop a nationwide outdoor recreation plan. The last plan was published in 1979. Under Public Law 95-192, the Soil and Water Resources Conservation Act (RCA) of 1977, the Secretary of Agriculture is directed to appraise the outdoor recreation situation as it relates to conditions and uses of soil and water resources. The last RCA Assessment was published in 1981. In addition, the Secretary of Agriculture has been directed by the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended by the National Forest Management Act of 1976, to continuously assess the condition and uses of the renewable resources of the Nation for guidance in develop-

U.S. Forest Service

*Private interest in outdoor recreation has heightened recently. A recent study by the Outdoor Recreation Policy Review Group built upon previous Federal assessments and resulted in introduction of Congressional legislation to establish a second Outdoor Recreation Resources Review Commission.*

ment of forest and range management policies and programs. Outdoor recreation is one of the primary renewable resources examined in the RPA Assessment.

Recently, private conservation groups have become more interested in outdoor recreation. In 1980, the American Forestry Association and other resource conservation organizations sponsored the National Conference on Renewable Natural Resources. Background papers were commissioned from recognized national experts in seven major areas, one of which was recreation. The summary report from this National Conference report and a subsequent report published in 1983 by the Outdoor Recreation Policy Review Group both recommend establishment of a second ORRRC modelled after the first. A major difference would be that the new ORRRC is to draw heavily upon the expertise and data from ongoing national assessment programs, such as the Forest Service's RPA Assessment. On April 19, 1983, a bill was introduced by Senator Wallop to legislatively establish a second ORRRC.

## Ongoing Assessment Activities

Changing priorities and smaller budgets in the federal government have left only one ongoing outdoor recreation assessment effort - the Forest Service Resource Planning Act (RPA) Assessment. Forest Service research scientists are serving as national coordinators for the outdoor recreation and wilderness section of this assessment. The work is being conducted at the Southeastern Forest Experiment Station's Forestry Sciences Laboratory at Athens, Georgia, with the assistance of key scientists and professionals at other Forest Service research locations, in universities, and in other federal agencies. Much of the research centered at the Athens Laboratory will focus on development of improved assessment methods and then applying these methods in development of the next RPA assessment of outdoor recreation in 1989.

Currently, the Bureau of the Census is conducting a nationwide survey of recreation participation. This National Recreation Survey (NRS) will be comparable with other surveys conducted in 1960 and 1965, and will be used by several federal agencies and universities for planning, research, and education. The Forest Service will draw heavily on this survey for development of projections of future participation in outdoor recreation. The projections will be used in development of the 1989 Assessment.

## Research Needs

Outdoor recreation assessments have largely proven inadequate for long-term planning. Yet, the information assessments can provide is increasingly important for planning effective recreation delivery systems. To design the most efficient, effective and responsive systems, we need to know as much about the future as we can. This is particularly difficult in the ever-changing arena of recreation. Changes in economic conditions, legislation, demographics, equipment technology, attitudes, available leisure time, and the emergence of recreation fads make prediction of future outdoor recreation participation especially complex.

Past projections have usually underestimated the magnitude of growth in outdoor recreation. More importantly, they have failed to predict new trends and directions in participation. Better projection methods are necessary to increase prediction accuracy, especially in terms of the kinds of changes that are likely to occur.

There are several promising areas where improvements in projection accuracy can be made. First, a single, standardized system for collecting recreation participation data should be established. Without accurate and uniform data, even the best projection models will project the future inaccurately. Improvements also need to be made in statistical projection methods.

A variety of statistical techniques exist, but none have produced fully satisfactory results. Beyond demand prediction, practical and accurate methods for describing recreation supply, scenic quality and recreational quality are important for accurately assessing the recreational merit of both public and private recreational resources. Finally, a system for periodic review and updating of assessment information is necessary to help guide mid-course corrections in policy and funding.

The current system for collecting recreation participation and supply data is largely uncoordinated and unstandardized. A large number of local, state, and federal agencies and a host of private groups provide recreation opportunities for the public. However, because we lack uniform definitions of supply elements and a standard data collection system, interagency, regional, and time series comparisons are haphazard at best. A standard system would provide more meaningful comparisons and would allow more accurate local, regional, and national coordination and planning.

Much of the assessment research being conducted by the Forest Service focuses on improving statistical participation projection methods. Two principal approaches are being evaluated using the current National Recreation Survey. The first approach uses estimates of the costs of travel to recreation destinations, along with indices of complementary and substitute opportunities, income, and other characteristics to predict future use. A second method uses recreation supply indices, participant characteristics, proxies of the price of participation, and other appropriate variables as predictors of recreation participation. The constraints imposed by a set of rigid assumptions associated with "travel cost methods" are relaxed somewhat under this second approach, but at the cost of more limited application of the end results. Improved participation models will be used to develop regional and national participation projections as well as projections for specific recreational activities.

Another particularly challenging problem is meaningful description of the set of opportunities available to persons in different parts of the country. Practical and accurate methods to describe local and regional recreation supply and conceptual frameworks for structuring samples for deriving estimates of supply quantities are not adequate. Several information sources, including a nationwide survey of rural landowners and a sampling of commercial recreation enterprises, will be pulled together to derive a meaningful and comprehensive supply picture. A particular weakness in the past has been the lack of measurement methodology to determine the urban and suburban supply spectrum.

An important part of assessing the recreational merit of both the public and private resource base is scenic and recreational quality. Research is currently underway to develop the capability to predict and describe the scenic quality of forest and range settings based on traditional forest stand and vegetational characteristics. A similar project is proposed to model recreational quality and utility. These quality descriptions can be integrated with the Recreational Opportunity Spectrum (ROS), which classifies land on a six-part continuum from primitive to urban settings. This system is currently employed by the Forest Service and the Bureau of Land Management. Research scientists will also attempt to determine ways to predict recreation participation within each ROS category.

The RPA assessment will also include a description of the amount and appropriateness of road and trail access, degree of public rights to access, amount and kind of site development, and management policies and practices. While describing the current status of these resource attributes is rather straightforward, describing trends and making future projections of these characteristics at 10-year intervals, extending 50 years into the future, presents a methodological challenge. Particular attention will be directed toward trends in and influences on private sector supply of outdoor recreation opportunities, and particularly

U.S. Forest Service

*An important part of recreation assessment is measuring various forms of outdoor recreational opportunities.*

toward economic influences on land use changes.

## National Assessment is a Cooperative Effort

Much of the Forest Service outdoor recreation assessment research is carried out in cooperation with key scientists in academic and private research institutions, as well as with scientists in other federal agencies. The major cooperating federal land-management agencies concerned with outdoor recreation assessment are the Forest Service, National Park Service, Soil Conservation Service, the Bureau of Land Management, and the U.S. Army Corps of Engineers. While the outdoor recreation interests of each of these agencies differ, there are many areas of mutual need and concern, for example, projections of future patterns of outdoor recreation participation. Current interagency cooperation is strong, but there is much room for strengthening the substance and process of this cooperation.

## A Final Word

The network for supplying outdoor recreation in this country is changing more rapidly than ever before. Budgets and staff are being trimmed, land and water management policies are being reexamined, and some recreation sites and facilities are being closed. At the same time, participation in outdoor recreation has climbed steadily, despite a lagging economy. New forms of outdoor recreation demand are emerging as technology and personal values change.

U.S. Forest Service

*One emphasis of future assessments must be to examine the role of the private sector in outdoor recreation.*

Federal, state, and local governments and the private sector must be able to respond in meaningful ways to rapid changes in outdoor recreation demand. Timely responses require accurate knowledge of the future. Improvements in long-term forecasts of recreation participation will provide a much needed general look at that future. Frequent systematic updates of outdoor recreation assessments are necessary to provide midcourse corrections in policy and funding.

The development of periodic national assessments of outdoor recreation is a challenging and important task. The results of a national assessment are widely used and have pervasive effects. For this reason, the data bases and analyses must be carefully developed, interpreted, and subjected to rigorous standards and review. Our work in Athens is directed primarily toward improving assessment concepts, models and methodologies. This work should result in better data and analyses for the 1989 RPA Assessment, as well as for other possible assessment efforts which may emerge. As the legislation to establish a second ORRRC moves through the legislative process, it will become more clear whether or not a second comprehensive review of outdoor recreation in America will actually occur. If it does, research to improve data bases and methods for obtaining and analyzing these data will attain even higher relevance. In any case, improved assessment methodology will assist traditional outdoor recreation planning and programming, and should ultimately lead to better management of this nation's outdoor recreation resources.

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For further information concerning the status of the National Parks and Conservation Association and the University of

Maryland Carrying Capacity Project contact:

Dr. Alan R. Graefe/Dr.Jerry J. Vaske/Dr. Fred R. Kuss, Department of Recreation, PERH Building, Room 2367, University of Maryland, College Park, Maryland 20742.

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## Trends

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The Park Practice Program is a cooperative effort of the National Park Service and the National Recreation and Park Association.

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# Message from the NPS Director

*by Russell E. Dickenson*

Catoctin Mountain Park

*Volunteers rebuild walk-through hearth at Catoctin Mountain Park.*

The subject of this issue of TRENDS, Volunteerism, is an activity in which I've had first-hand association for twenty years, dating back to my years at Grand Teton National Park as Chief Ranger. More recently, the National Park Service has utilized volunteers in its many and diverse operations, through the Volunteers in Parks program, for thirteen years. I was directly involved with the original legislation creating the Volunteers in Parks (VIP) program in 1970 and have maintained a close interest in the program ever since.

During the last thirteen years over 100,000 persons have volunteered their time and talents to help the National Park Service accomplish its goals and mission. It is impossible to place a true value on the benefits, both tangible and intangible, that the Service has received from those volunteers, but it is substantial. Many of the fine programs and services the public has received from this agency over the past several years would not have been possible without volunteers.

Today, volunteerism is playing an even more important role in the operations of public service agencies than it has in the past. The National Park Service is placing increased emphasis on utilizing volunteers in all aspects of park operations and I know that other agencies are doing the same. I am pleased to see the emphasis this issue of TRENDS places on the great variety of ways volunteer services can be utilized. I hope you will find inspiration in these articles and information that will help you attain a richer and more productive partnership with the citizens of this country through volunteerism.

# Volunteerism - What It Is And How To Utilize It

*by Roy Graybill*

National Park Service

*Young and old, people like to volunteer for Park and Recreation agencies.*

Volunteering is an American tradition that over the years has made an immeasurable contribution to communities, organizations and individuals throughout the country. A recent poll found that over one-third of the American public has been, or is now a volunteer, and over half of those presently involved in volunteer work are also employed in full time or part time jobs. The image of volunteers as idle housewives searching for something to do with their spare time or senior citizens bored with retirement has given way to today's realities. Volunteers are still working in hospitals and leading scout troops, but they are also operating visitor information stations, managing campgrounds, rehabilitating park and forest trails, training seasonal recreation staffs, and conducting archaeological research. Today's volunteers are active, dynamic, creative individuals of all ages who possess the skills, desires, patience and time to accomplish a wide variety of tasks.

The reasons why people volunteer are almost as numerous as the types of work they do. Most volunteers have more than one reason or objective. Volunteers are motivated by satisfactions and benefits which do not involve money. Unlike many paid jobs, volunteering gives people the opportunity to do things they want to do and can do well. Although many people volunteer to use their available skills, other volunteers seek work that is totally different from their everyday work. Volunteering is a way to provide a public service and fulfill responsibilities to society. It provides an opportunity for people to be helpful. Volunteering can provide opportunities for learning, opportunities to follow an avocation, and can be an outlet for people's creative energy.

There are many advantages to working with volunteers beyond the obvious one of accomplishing a job at minimal expense. Enabling people in the community to be actively involved with your programs and operation increases public support and helps them understand the work and planning behind management decisions. With volunteers, you can expand existing programs beyond the limits imposed by personnel ceilings and budget reductions, and complete projects that would otherwise not be started. A volunteer can provide skills or expertise needed on only a temporary basis. And, behind-the-scenes volunteer work can free up paid staff for more upfront critical services. Groups constitute a specific category of volunteers. Through group involvement, projects requiring large numbers of people, such as the maintenance of a long segment of trail, or the handling of a special event can be accomplished.

## Analysis

The decision on how volunteers will be utilized in a particular program or operation must be based on a solid and thorough analysis of management needs and goals. A volunteer program begun without such an analysis is likely to result in dissatisfaction and disillusion on the part of both the staff and the volunteers. The first step in this process is to designate someone on your permanent staff to coordinate the analysis of management needs.

National Park Service

*Volunteers play a key role in many National Park functions.*

Ideally, this person should be someone who can also assume the responsibility for coordinating the overall volunteer program once it becomes operational. Since all or most of the supervisory staff of an organization is usually involved in the initial assessment of needs, and may be actively involved in using volunteers once the program is initiated, the coordinator should, if possible, be in a position that allows him or her to work directly with the various supervisors on a day-to-day basis. The advantage of establishing the coordinator position at the very beginning is that the coordinator develops a working relationship with the supervisors and other staff, and an understanding of their various situations and needs, that will ensure a well run, successful volunteer program once it is implemented.

## Staff Resistance

A note here concerning staff resistance to using volunteers. Some members of your staff may have objections to utilizing volunteers. These objections are usually based on real fears; fear of losing their paid position; fear that supervising volunteers will take too much time, or that volunteers will not do an adequate job. The best way to reduce these fears is to openly discuss plans for a volunteer program with staff members and encourage them to participate in the program's design. Give the staff members the opportunity to suggest what jobs can be done by volunteers, the kind of training that should be provided, and the types of skills needed, and also encourage their input into the program's general management.

Avoid dwelling on "how to cope with volunteers." Concentrate on the positive (how to get those things done that you have been wanting to do, how to increase the size of your staff, how to take advantage of this opportunity, etc.). Hostility to a volunteer program is usually based on a lack of valid information. Good communication before the program is initiated and active staff participation in the program's design and management can help alleviate many of these problems.

## Activities List

The next step in the analysis process is to determine how volunteers can help you and what type of volunteer skills you will need. To determine your organization's need for volunteer help, develop a list of *all* activities done by staff members over the course of a year. (This list should be based on real activities, independent of what is stated in job descriptions.) From this list pick out those jobs which are *not* part of an employee's official duties. Also pick out (from the original list) those jobs which do not use your staff's training, time and experience to their best advantage. Add to these items all projects or jobs that you would like to

accomplish if only you had the time and staff. Don't forget to list one-time assistance needs and projects that require specialized skills. The results of this exercise should be a list of work that volunteers can probably help you accomplish. Review your list and weed out any jobs where you feel expected results would not be worth the commitment of time, training, and supervision required. And finally, put the work or tasks in a priority order, according to management's goals and objectives. This final master list should then be updated periodically to keep it current.

From your master list you can then select the tasks or jobs that you can realistically expect to accomplish with volunteer help and prepare a job description for each one. Job descriptions define the tasks or duties expected of the volunteer, can prevent misunderstandings, and will be of great benefit to both organization and the volunteer. Each job description should contain a description of the work to be accomplished, the working conditions, equipment to be provided and by whom, knowledge and skills required, time commitment, supervision and guidance provided and an evaluation schedule.

## Recruiting Volunteers

Once you have determined your need for volunteers you are ready to start looking for volunteers to fill those needs. Recruiting volunteers requires patience and persistence, particularly in the initial stages of building a program. As time goes on, satisfied volunteers will spread the word and may be one of your best sources of additional help.

A good place to start looking for volunteers is at a volunteer clearinghouse in your community. Volunteer clearinghouses generally provide help in locating and placing volunteers. You can list your volunteer needs with them and they may be able to find just the person you are looking for. They can also help answer questions concerning volunteer management and often offer seminars on managing a volunteer program. Volunteers can also be located through the news media, at club meetings, social functions, or church gatherings; through professional societies or senior citizens groups; at shopping malls, fairs or conferences; and through private businesses, industries or state and federal agencies. Student volunteers can be found on college campuses and reached through the college's clubs, student union information networks, college newspapers, job placement centers, and by approaching professors teaching a course related to your needs. High school and elementary school age volunteers can be found through teachers, principals, guidance counselors, and clubs. Special interest groups can be reached through their activities manager, president or leader, or through an active member. You can present your needs at one of their meetings or describe your needs through an article in the club's newsletter.

## Personal Interviews

If at all possible, you should not place a volunteer in your organization without first conducting a personal interview. Usually the potential supervisor of the volunteer conducts the interview although sometimes it may be appropriate for the coordinator to do it. The interview provides the volunteer and the supervisor with a chance to size up the situation and gather information before any commitment is made. It also provides the opportunity to ask detailed questions. The interview should identify or define the individual's skills, interests, and limitations. It also offers you the opportunity to provide specific information on training, orientation, equipment, any uniform or special clothing requirements and any other specific benefits or requirements relating to your organization.

## Orientation

Most volunteers, even those who bring specific skills and knowledge applicable to the jobs they will do, will require some orientation to acquaint them with your organization, their job and coworkers, the layout of their specific worksite, and the performance and attitudes expected of them. Orientation begins at the moment of placement and provides volunteers with their first real indication of how your organization feels about them. Be sure that the "where," "why," "what," and "with whom" of the volunteer's first assignment are covered in the orientation, as well as who to go to for help. Other subjects that should be covered include work schedules and time-keeping arrangements, and what to do in case of accident and/or injury. Proper orientation, designed around the volunteers' needs, can help them feel welcome and can help them

get the most from their volunteer experience.

## Supervision

Some people may feel uncomfortable about supervising volunteers, but in reality, supervising volunteers requires the very same skills and techniques as supervising paid employees. Volunteers *want* adequate supervision, direction and guidance so that their donated time is utilized effectively. Just as in supervising paid employees, the goal of a good volunteer supervisor is to help the volunteer feel productive, successful, supported, recognized and rewarded. It is extremely important to respect and value the volunteers' time. You may not be paying them, but their time is valuable to them and also to your organization. Take the time to carefully plan and schedule their work, and to consider how their productivity might be increased through better methods, coordination, equipment, training, etc. Value the expertise they bring to the task. And, let the volunteer know if their work is good and/or how it might be made better. Finally, hold the volunteers accountable for the duties they agree to perform and the time commitment agreed upon. *Accountability breeds responsibility.*

## Recognition

Everyone, whether a paid employee or a volunteer, wants and needs to have his or her efforts acknowledged. A key part of supervising volunteers is recognition; showing appropriate appreciation for a volunteer's work and offering meaningful rewards for good performance. Recognition provides incentives to the volunteer to continue working with you and is central to the retention of volunteers. Traditional forms of volunteer recognition include end-of-the year banquets, awards, plaques, books, pins, etc. These forms of recognition are necessary and rewarding as tangible evidence of appreciation and notice. They focus on what volunteers do for you and are usually handled in a formal manner and on a set schedule.

But, there is more to recognition than just tokens and gifts. Recognition is not so much something you *do* as something you *are*. It is a sensitivity to others as the uniquely motivated and talented people they are. It is not just a way of saying thank you, but a response to an individual's own unique interests and reasons for being involved. It can happen pretty much automatically in a well managed volunteer program, especially if the climate is friendly. Every volunteer appreciates a smile from those he or she is working with, perhaps even more than formal recognition events. There is no such thing as a "no-fail recognition package" guaranteed to work for all volunteers. To be effective, recognition needs to be personalized and appropriate to the needs of the individual recipient.

In order to design and use an appropriate recognition system

National Park Service

*For this VIP, volunteering is (like therapy) in contrast to his full-time job as a police officer.*

National Park Service

*Maintenance has recently been added to the functions open to VIPs.*

you must understand as much as you can about your volunteers and avoid assumptions and stereotypes. This requires communication; an on-going dialogue between the coordinator, the volunteer's supervisor and the volunteer. The challenge of linking recognition and reward to individual volunteer needs, in a day-to-day, on-the-job manner, provides a marvelous opportunity to be creative and innovative.

## Evaluation

Frequent, informal evaluation, by both the supervisor and the volunteer, can be a great help to your volunteer program. Supervisors should try to conduct an informal interview with each new volunteer after the first month or so. This will help identify potential problems before they arise and give both parties a chance to review the job description. Volunteers should receive a written evaluation from their supervisor when a major project is finished, when the volunteer terminates his or her services, when a volunteer's services are terminated by the organization, or at least annually for continuing volunteers.

In this article we have taken a quick look at volunteerism and discussed in general some ways to effectively utilize volunteers in your organization. The trends and changes emerging in the world of volunteerism indicate that volunteerism is becoming one of the major means of providing public services. Agencies and institutions, both private and public, are extending their activities, programs and services through a greatly increased use of volunteers. Indeed, this Administration has made it clear that volunteerism is one of the ways in which the citizens of this country can increase their help to each other and to themselves, and thus make the democratic system work more effectively. The opportunity to involve the American public in helping us achieve our mission and goals has never been greater. It's an opportunity we can't afford to pass up.

*Roy Graybill is the Servicewide Volunteers in Parks Program Manager for the National Park Service.*

# National Volunteer Project

*by Cheryl Rawls*

The National Volunteer Project (NVP) of the Appalachian Mountain Club (AMC) was made possible through a grant from the Richard King Mellon Foundation of Pittsburgh, Pennsylvania. This 3-year project was formed in 1982 to:

- increase opportunities for volunteer participation in managing America's natural resources;
- create long-lasting partnerships among voluntary organizations, government land management agencies, the business community, and the public at large;
- support these partnerships in developing creative solutions to current resource management problems;
- broaden the constituency of support for the enjoyment and wise use of America's natural resources; and
- promote a healthier American society.

The U.S. Forest Service became a part of this effort in the Fall of 1982 and donated the sevices of Gerald Coutant, Director of Agency Services, for a two-year term to help support its objectives.

The Appalachian Mountain Club has a 107-year history of volunteerism and working with other agencies and organizations involved in the stewardship of our natural resources. The goal of the National Volunteer Project is to share its accumulated knowledge and expertise with others. Volunteer groups and government agencies across the country are creating and strengthening firm, long-lasting partnerships. The working relationships benefit all who participate—whether they are volunteers, industry representatives, or government employees. The success of the National Volunteer Project will be based on the long-lasting volunteer programs left behind after the end of 1984. Knowing that a program that works in one area with a certain mix of individuals will not work as well in another area with a different set of people, the National Volunteer Project is not creating new AMCs or structuring groups around the AMC organizational structure. Each project area in its own part of the country has developed its own management structure designed to meet its own needs. The NVP assists by helping to develop programs in response to these individual needs.

## Demonstration Areas

Six demonstration areas have been selected by the NVP steering committee (a group of AMC volunteers) to focus support and monitor the results of our efforts. Small start-up grants are available to qualifying organizations in these areas to assist in accomplishing their objectives.

Most of our assistance, however, is in the form of sharing knowledge and skills. We have found that in spite of the many different characteristics of each part of the country, the type of assistance they have asked for is basically the same. They already know how to build trails, plant trees, and other "hands on" activities. The techniques they hope to gain from the NVP are in the areas of fundraising, membership development, organizational structure, marketing, public relations. . . in other words, management skills to make their organization grow larger, stronger, more efficient, and provide more and better services. After three years the project areas will be self-sufficient — having acquired the skills necessary to sustain themselves and continue growing in the future after the NVP withdraws.

## New Mexico

New Mexico was the first area to be selected as a demonstration area. Volunteers for the Outdoors (VFO) is a newly formed coalition of agencies, individuals and nonprofit clubs. Their first major activity was in October 1982, when over 200 people volunteered for the Embudo Canyon Recovery Day. With great enthusiasm, the volunteers were able to accomplish an astonishing amount of work. Projects included erosion control measures, trail construction, bank stabilization, litter removal, landscaping, and fence and sign repair.

The winter was spent preparing goals and objectives, and getting ready for the 1983 season. In March, a "Bosque Day" was held in the foothills of the Sandias. Again over 200 volunteers turned out to transplant small trees and clear a trail through the Rio Grande Nature Preserve.

VFO also sponsored a Pecos Wilderness Trail Maintenance Crew for the summer of 1983. VFO and the Forest Service worked closely in planning this

National Volunteer Project

*Volunteers working during Embudo Canyon Recovery Day (New Mexico).*

10-week program. 400 miles in the Sana Fe National Forest were maintained by crews of 10 to 15 people.

Roger Moore, NVP Director of Volunteer Services, has been in Albuquerque since last spring on loan from the AMC. VFO is making plans to hire an Executive Director to fill Roger's place when he leaves. The National Volunteer Project will leave behind a strong coalition of volunteers, land-management agencies, and businesses interested in supporting outdoor activities.

## Washington

Washington was the second area selected by the NVP steering committee. Volunteers for Outdoor Washington (VOW) is a coalition of groups and agencies working together toward common goals in western Washington.

Harriet Bullit, publisher of *Pacific Northwest* magazine has been selected Chairman of the VOW Council. Under her leadership, the coalition designed a logo and brochure, began an Adopt-A-Trail program, joined with the State Department of Natural Resources in updating a trail maintenance guide, began training sessions with certification in learning trail maintenance skills, suggested to the Governor that a Trail Maintenance Month should be designated from June 17 to July 18, and began production of a newsletter.

Other efforts are too numerous to mention here, but let it suffice to say that VOW is a hardworking, very active group of volunteers. They receive guidelines and information from the NVP as they grow and progress, so that by the end of 1984 VOW will be completely able to stand on its own and continue expanding its programs.

## Florida

The Florida Trail Association (FTA) was chosen as Project "FeeeT" was undertaken. The F and T represent the Florida Trail, and the three e's represent expansion of membership, extension of the trail, and enlistment of more active volunteers. The NVP is assisting with these goals by sharing organizational, financial, marketing, membership development, easement advice, and other skills. The FTA was founded in 1964 and has grown and spread throughout the State of Florida. Over the past few years growth has slowed and, with the great increase in land development, members realized that it is critical to complete the trail while the land is still in its natural state for outdoor enthusiasts to enjoy.

The Appalachian Mountain Club hosted seven FTA members for a 3-day conference in New England last fall. Since then, many of the ideas generated have been acted upon. For instance, two new staff people have been

hired, the headquarters was moved from a home to a real office, chapters have been formed with written guidelines to follow, committees have been created and started functioning (education, finance, membership, and more), and a backpacking certification course is being offered. These are just a few of the events that have been happening over the past few months. Agreements have just been completed with three major paper companies to allow the Florida Trail on their lands. Construction by volunteers will take place in October, 1983, completing a 500-mile stretch of continuous trail.

The Florida Trail became a National Scenic Trail on March 28, 1983, when President Reagan signed the Trails Systems Amendments Act. This Act also recognized the importance and value of volunteer efforts on our trail systems across the country. Once the trail is completed, the FTA will be kept busy with maintenance, educational programs, and a continuum of expanding programs.

## California

Two projects were chosen in California. The Trail Information and Volunteer Center (TIVC) is housed in a Palo Alto office that has been donated for a few months. The TIVC is a coalition of organizations working together to provide volunteer public outdoor recreation opportunities in the Santa Cruz Mountains. They provide organizational support for educational programs, trail construction and maintenance projects, and other programs designed to provide outdoor recreation opportunities on public lands.

The 15th Annual Trails Day was held April 16 to repair damage that occurred during the winter. Blowdowns and vegetation covering the trails were removed, erosion control structures repaired or replaced, bridges built or repaired, fresh blazing where needed, and the trails were widened in many places. Sam Rogers, Director of Planning for the Appalachian Mountain Club, visited in early April to discuss fundraising. Goals and strategy were agreed upon and plans were set in motion.

The Center will serve as an information base on trail locations and conditions, outdoor activities, and materials related to natural resources and outdoor education. It will be a "skillsbank" of volunteers, to coordinate with agencies and clubs to match the appropriate volunteers with the right jobs to be done. The Center will be a dynamic one since information of this type is constantly being updated and revised. New trails, current outdoor group excursions, and the latest experiences of other hikers will make the information program vary with seasons while maintaining its base of resources that never becomes outdated.

The Tahoe Trails Council was selected in December as a National Volunteer Project area. Their main goal is completing a trail around Lake Tahoe in California which will be geared for family use. Eventually this trail will become a section of the Pacific Crest National Scenic Trail.

A summer trail crew was developed with trained leaders for the summer of 1983. Training sessions and workshops in the spring prepared the crews to begin work in July and August. The results were monitored and evaluated in September to be incorporated into future plans.

The Forest Service had previously completed an Environmental Analysis which has been approved for work to commence. The volunteers were recruited, trained and organized by the agencies and clubs who are all working together on this project. Once the trail is complete, other duties will remain for volunteers. Trail maintenance is an ongoing process, along with environmental ethics and outdoor education.

The coalition formed between the clubs and agencies around the lake have written and approved their goals and objectives in their by-laws. Their purpose is to "promote the construction of hiking trails in the Lake Tahoe Basin and in contiguous mountains of the Sierra Nevada, and to establish operational procedures to assure the continued upkeep, maintenance, and operation of the trails after their establishment." The Board of Directors includes representatives from non-profit clubs all over that section of California.

## Colorado

Colorado was selected as a demonstration area in February 1983, with projects in Aspen and in Denver. The Aspen Wilderness Workshop is conducting a resource study. The results will be valuable to the Forest Service, Bureau of Land Management, and anyone else who has a need for natural resource data of

National Volunteer Project

*NVP Director of Volunteer Services Roger Moore (center) and members of Volunteers for the Outdoors in New Mexico.*

the area. The Appalachian Mountain Club is aiding them through their Research Committee volunteers.

The Aspen Wilderness Workshop is a relatively small group of volunteers who have been providing information on wilderness and roadless areas since 1967. They have been involved with both Roadless Area Review Evaluation (RARE) documents and creation or expansion of several wilderness areas.

The National Volunteer Project is assisting them in producing a data base for future management decisions. The AMC can help set up this ongoing data collection by sharing their experiences from New England with acid precipitation, user data, erosion control, revegetation, training and equipping volunteers for this work, etc. Once the program is set in motion, the results will be monitored and evaluated. In a short period of time the AMC will be able to retreat and leave behind a self-sustaining, continuous data collection program run by volunteers.

The project underway in Denver is being coordinated through the Governor's Office of Voluntary Citizen participation. The Colorado Council on Recreational Lands is working toward developing a network of land management partnerships in Colorado. Previously, several of these groups had initiated small scale volunteer efforts but without much success. The future looks a lot more promising with the commitment from everyone working together toward a common goal. This time the *Volunteers* are involved—an important element that was left out before.

The Council is composed of three elements—public, private, and volunteers. Their mission is "to develop and support a program offering citizens opportunities to contribute to the successful management of public lands in Colorado." Initially, the Council will work to develop short-term projects designed for diversity, visibility and service for the summer of 1983. They will continue by developing a fully operational clearinghouse and coordinating mechanism by 1984.

The Council will have five areas of responsibility:

1. An information center to receive calls, inform interested individuals, and refer them to appropriate agencies.
2. Public education—to promote stewardship, safety and land ethics through speakers, brochures, etc.
3. Foundations—fundraising for various activities.
4. A clearinghouse to serve as a continuum of support for volunteer activities and skill training.
5. Working with public land managers on decisions regarding recreational improvements on public lands.

## Pennsylvania

Two projects are in the planning stages in western Pennsylvania. The Pennsylvania State Garden Club Association is bringing a proposal to its members to become involved in planting wildflowers along trails throughout the state. Other organizations have been contacted and have expressed an interest in becoming involved.

Another statewide project is a proposed volunteer "River Patrol" based on the National Ski Patrol model. A meeting in July will be held to bring together interested parties to develop goals and objectives for the program.

## Conclusion

Each of these project areas has in common the goal of being an ongoing, self-supporting group by the end of 1984. The National Volunteer Project will then be able to withdraw its aid in a manner that will not weaken the group. The intent of our project is to share the skills necessary to grow and form partnerships without forming any dependencies on the Appalachian Mountain Club. At this point, halfway through our three-year project, our efforts are showing very positive results. Strong leadership has developed and the dedication and enthusiasm necessary for all volunteer programs is readily apparent.

*Cheryl Rawls is a staff member of the National Volunteer Project, Appalachian Mountain Club, in Atlanta, Georgia.*

# Discovering the Volunteer Spirit Where You Are

*by Jill Welch*

During the winter of 1982-83 I was involved in developing what turned out to be an extremely successful volunteers program for the Bureau of Land Management (BLM) along the lower Colorado River. It was not only my first experience in recruiting and working with volunteers, it was—we think—the first volunteers program attempted by my agency in our area of the Southwest.

How we came up winners in our first venture in volunteering is what this article is about. I would like it if our experience will encourage other beginners to go for volunteers.

BLM's Yuma District extends from just below Lake Mead some 165 miles south to the Mexican border. Our District is responsible for managing the Federal lands on both the Arizona and California sides of the lower Colorado River—more than 300 miles of shoreline. Recreation visitors are attracted to our District by both the river and our beautiful winter climate. Thus, recreation management is among our highest priorities.

I work in the Southern half of the District, the Yuma Resource Area. Last year our Resource Area of about 8,000 square miles received well over 1.7 million visitor-days of recreation use. While the Colorado River draws most of our visitors, many also came to camp in the Sonoran Desert, 20 miles or more from the river, concentrated on both developed and primitive recreation sites provided by BLM.

Managing our recreation resources has often presented problems for our small (3-person) Resource Area recreation staff: user-conflicts, overcrowding, sanitation, overseeing maintenance contracts—you name it. But we thought we had a handle on it until our fiscal year-1983 budget was whittled down to bone marrow. The budget did not provide for about half our customary janitorial and maintenance contracts. We also lost funding for one staff member. We had inherited construction material from the disbanded Young Adult Conservation Corps (YACC), but we had no labor or money to build the YACC-planned projects. Besides, we were right in the middle of building a long-needed recreation site. Any way we looked at it, we had more work than ever before and fewer hands to do it. Rather than close our existing facilities because we couldn't maintain them as we had before, or let construction material just warp under the desert sun, we looked outside the BLM. And what a success it turned out to be!

## Beginning Gradually

Because we had no prior experience with volunteers, we eased into using "outsiders" gradually. We started by contacting a local representative of Green Thumb, Inc., at the suggestion of our Washington and Arizona State Offices. Green Thumb operates an on-the-job training program for unemployed people 55 and older, sponsored by the Farmer's Union in cooperation with the (Federal) Senior Community Service Employment Program. It cost the cooperating host-agency virtually nothing and has little paper work. Our two Green Thumb workers gave us 20 hours a week and provided useful sup-

port—one worked as a handyman outside, and the other did office clerical work—that kept us going while we began to think about how to attract volunteers.

Encouraged by the initial success with our Green Thumb oldsters, we soon asked for and received a college student through BLM's new Student Conservation Program, in cooperation with the Student Conservation Association. This program is voluntary for the unpaid student participants who receive travel expenses and a small subsistence allowance, though no pay for 12 weeks of educational para-professional work experience. Our student, a junior from New York, was a wonder. She answered letters, made routine patrols, developed brochures and presented campfire talks. She gave us breathing time to really plan a volunteers program and get it moving.

Our program evolved into four categories: special programs, regular maintenance, special projects, and campground hosts. "Special programs," so far, are the Student Conservation Program and Green Thumb, noted above.

Regular maintenance was the next challenge. We feared we might be forced to close some of our recreation facilities because we couldn't afford to maintain them. So we looked around us for some helping hands.

## The Migratory Snowbirds

Most of the facilities we couldn't maintain were for our winter visitors, many of whom are "Snowbirds." Snowbirds — retired couples, for the most part—are people who follow the sun. Every winter thousands

Glenn R. Stewart, BLM

*Yuma Resource Area Recreation Planner, Jill Welch, meets informally with members of the Palo Verde Rod and Gun Club as they make one of their weekly patrols of public lands.*

Glenn R. Stewart, BLM

*Palo Verde Rod and Gun Club members use their own vehicles to make trash patrols on public lands.*

migrate to our area in their motorhomes, campers, buses, trailers and any other recreational vehicle you can think of, to escape the snows up north. They love our mild winter weather and desert environment. They fish, hike, rockhound, explore, and generally enjoy the desert life. They often stay in one area four or more months. These are the people we approached first and their response was heartwarming.

Snowbirds take care of themselves; they are proud of their independence. When we met with a group of them at one of our campgrounds to explain our funding situation, 25 volunteered to provide an "adopt-a-potty" crew. They maintained seven sets of vault toilets all last winter. We provided toilet paper and cleaning supplies; they provided all the labor. Our volunteer agreements with these older folks lasted six months without a hitch. Each crew member worked one to three hours a week—labor that would otherwise cost us $4,500 for a maintenance contract.

Although at the beginning a lot of our staff time was required to enroll and coordinate these volunteers, it proved to be a good investment. The encouragement and moral support our staff provided for them were essential. And, just as important, the volunteers encouraged and supported the staff. We learned to cooperate. And we all started to see stewardship of the public lands in a new light.

As we began to realize the volunteers potential of our winter visitors, we began to see local residents—our all-year neighbors in nearby communities—in a new light too. Right away, a perfect opportunity occurred to enroll them also.

One of our toughest maintenance challenges was cleaning up litter that was building up along the Colorado River shorelines. We couldn't afford a trash collection contract we had traditionally funded, and the results were depressing. In spite of signs asking campers to pack out their trash, the banks of the Colorado were looking bad.

## All-Year Neighbors

Members of one local organization, the Palo Verde Rod and Gun Club, also were so concerned about the trash that they wrote us a letter asking why we didn't clean it up. Naturally, they became our next target for a volunteer crew. We met with them, explained our funding problem, and challenged them to enter into a formal volunteer agreement with the BLM to do something about it themselves.

Dedicated club members accepted the challenge. They organized themselves to make twice-a-week trash collection patrols along a heavily used 20-mile stretch of the river, and adopted a vault toilet on their route. This project is continuing today (Fall 1983). We provide 15 BLM trash barrels; they provide the same number of their own.

Their weekly patrols usually include seven regular crew members (and a few irregulars) who bring three of their own pick-up trucks to haul trash to the county dump. The combined mileage on their trucks usually exceeds 100 miles per patrol, and they pay for the gas. The regulars are all retired gentlemen who live in the area. Often, wives come along to help. Together, they provide about 50 hours of labor a week, which otherwise would cost BLM about $5,000 year.

These extraordinary people share a conviction that the Colorado River is a unique recreation resource that should be protected. According to Jack Page, one of the primary motivators on the crew, "There isn't too much of the river left down here where a family can come and enjoy an outing. We want to keep this area in trust for our grandchildren—for *all* grandchildren."

As these volunteers make their weekly rounds, they talk casually with campers and share their feelings about responsibility. We hope this communication will create an ongoing chain of stewardship among both the all-year and visiting campers along the river—one that will be passed on from year to year.

Our "special projects" are one-time tasks that use volunteers. This started when an ardent canoeist volunteered to improve a couple of primitive BLM boat-in campsites—and did a fine job. This worked out so well we were sure we could manage a volunteer construction crew to build other special projects. We posted want-ads on our campground bulletin boards, and, again, a flock of Snowbirds responded.

The YACC had bought enough lumber to build four ramadas—to provide shade and tables at a campground that was under construction. When we lost the YACC crew, we thought we had lost the ramadas too. However, our Snowbirds put up four beautiful big ramadas in just a month. The crew consisted of six regulars and a few drop-ins. They poured the concrete, did the carpentry, painted, and operated heavy equipment under supervision of one BLM employee. They were on the job 6-to-8 hours a day, often including weekends, and their work was professional in every respect.

Before the crew started each member signed a BLM volunteer agreement which included coverage for work-injury compensation. That was a good thing because we had our first volunteer's accident with this crew—a sprained ankle. After the injured Snowbird went to the hospital to have his ankle x-rayed and taped, we were all surprised how little paperwork resulted. We figure the finished ramadas are worth $15,000, including $9,000 for the labor. We are all proud of those ramadas. They'll be providing shade for our recreation visitors for many years to come.

## Campground Hosts

Campground hosts are our final category. We had heard of the success of the Forest Service with its Campground Hosts Program, and thought this would be a perfect time to try the idea in our own campgrounds. Because our staff patrols had been cut back so drastically, we needed our hosts for many purposes: to provide information and assistance to visitors, act as our eyes and ears in the field, keep records, watch over and help maintain our facilities, deal with problem campers—and encourage other campers to get involved as volunteers!

We recruited seven campground hosts through bulletin-board notices and word of mouth. Three couples and one individual assisted at four campgrounds. They were invaluable. They made more contacts with visitors than we ever were able to before; they were on duty about 25 hours a week. We figure they provided us—and their fellow campers—with about $6,000 worth of services. And, they became our friends.

Since we began inviting people to volunteer, from time to time what we call "special people" drop by our office to volunteer unsolicited assistance. They are mostly local people of all ages who have heard about our new volunteer program and want to be in on the action. They work for a few days or a month. They water trees, provide temporary office help, and do whatever else needs doing. One lovely lady, Elizabeth Bovee, is even sewing vests for all our campground hosts. The vests would cost over $100 to purchase; she's making them for about $40—only the cost of the material.

Our new volunteers program was operating at its peak last February (1983). We had nearly 50 volunteers working almost 400 hours a week. We now have a

Glenn R. Stewart, BLM

*Retired campers at the South Mesa Campground volunteer to construct picnic ramadas under the supervision of a BLM operations staffer.*

mailing list of almost 100 people we can call on when we need them. While many challenges are yet to come, we think we had a successful first year.

## They Knew They Were Needed

Why were we successful? I think the main reason is that we really needed our volunteers and let them know it. We treat them as the valued people they are. We have potluck luncheons to honor them. We take up collections among our employee staff so we can give them awards, certificates of achievement, cakes, photographs, mementos and gag gifts. We seek lots of coverage in the local newspapers, radio, TV, and in our employee newsletters. We *always* write thank-you letters. We give them baseball caps with BLM patches.

My favorite of the awards we've given is the Golden Dustpan and Broom Award we gave to the Palo Verde Rod and Gun Club. It's inscribed: "Honorary Custodians of the Colorado River—Presented to the Palo Verde Rod and Gun Club for Your True Volunteer Spirit."

It adds up to lots of personal attention, acknowledgment, and recognition. And not only of their contributions, but of each of our volunteers as a person who cares about our environment and acts on that concern by taking personal responsibility for a part of it.

When we began, we had no idea there was so much potential volunteer spirit right around us—in our seasonal visitors from all over, and in our year-round neighbors in our own community. As we worked with these very special folks, we discovered that our mutual inspiration, our common bond, was our shared concern for protecting our desert and our river. As we worked together, we found the trust and respect we developed for each other was what kept us going.

## Looking Ahead

What's the outlook for *next* winter? We'll continue to participate in the Green Thumb and Student Conservation Programs, and we're talking with people at a nearby junior college to see what we can work out to encourage volunteer service by local students.

Next fiscal year we want to supplement the Rod and Gun Club's litter patrol with a partial trash collection contract; we don't want to burn out our volunteers.

We've already signed up enough campground hosts to look after two new campgrounds, in addition to the four that were hosted last winter. And, we're planning improvements. Our hosts stay in our campgrounds free of charge, but since we have only one fee campground in our area, that isn't much incentive. So next year we want to build shade ramadas for our hosts and provide electricity and water in two locations; we'll have a tough time getting anyone to stay through our 120-degree summers until we do that.

Throughout the summer we've received postcards from some of our Snowbirds, mailed from a good ways north of the lower Colorado. At the same time, we've been planning projects for them when they return: constructing the additional campground ramadas, building and installing some needed signs, building boxes to hold leaflets along our self-guiding nature trails.

The messages on our Snowbirds' postcards say they're looking forward to seeing us again and doing some more work with us next winter. We're looking forward to seeing them—*and* our volunteer friends from our neighboring communities—too.

*Jill Welch is the Supervisory Outdoor Recreation Planner for the Bureau of Land Management's Yuma Resource Area.*

# Are Volunteers the Answer?

*by Sam Migliazzo*

City of Westminster, CA

*The anti-graffiti project has become a major youth volunteer program.*

In California cities there are reduced financial resources brought about to a considerable degree by Proposition 13, the state initiative law which was passed by the voters in 1978. As a result, many park and recreation agencies received cuts in programs, services, budgets, and personnel. The drastic nature of Proposition 13 has been the catalyst for many agencies reviewing their goals and objectives. Over the years, parks and recreation agencies have used volunteers to some degree in such traditional programs as youth sports, excursions, playground aides, assisting with special events, chaperones at dances, tree plantings, and serving refreshments at department sponsored programs.

Today, with diminishing dollars and fewer paid staff, there is a need to expand and increase volunteering resources in every facet of programs and services. From the inception of Westminster Community Services & Recreation Department twenty-three years ago, volunteers have been utilized in a variety of ways as described, but in recent years, volunteers have been called upon to help expand programs and services that would otherwise have been dropped due to lack of funds.

A recently completed survey by the Gallup organization determined that 52% of American adults and an almost equal proportion of teenagers (53%) volunteered in the year between March 1980 and March 1981. More specifically, among the adult population 19% volunteered for a church or religious organization, 12% in the health area, 12% in educational activities, and 7% in recreation. In addition, 23% are involved in informal volunteer activities on

their own. Among both adult and teenage volunteers, the reason most frequently mentioned for becoming involved in volunteer work was a desire to do something useful. Other reasons mentioned with almost equal frequency were having an interest in the volunteer work, and the belief that volunteer work would be enjoyable.

The Westminster Department of Community Services, which services a population of 72,000 people, found that implementing an expanded volunteer program is not difficult, but it does require thoughtful planning, direction, and an understanding and commitment by the entire staff.

It was from this commitment that the volunteer program was expanded to include some of the special programs which are outlined below.

## Graffiti Eradication Program

Many masonry walls throughout the City have been defaced and citizen concern was very high. A local high school service club was responsible for starting the graffiti eradication program. The City Council approved expenditures to purchase paint, rollers, and brushes for volunteers. The Boy Scouts, Boys Club, church groups, Girl Scouts, and service clubs quickly asked to join in the project. When the program started in 1978, thirty-seven vandalized walls were located in over twenty sections of the City. Since that time, over 150,000 square feet of graffiti have ben eradicated, 500 gallons of paint have been used, and hundreds of volunteers have offered their services. The local American Legion contributed money for paint, brushes, and rollers and also helped to paint out graffiti. The practice of graffiti on masonry walls has not been totally eradicated, but frequently there are more volunteers wanting to paint than walls ready to be painted.

## Senior Citizen Program

Older citizens have traditionally been one of the most dependable groups of people to volunteer at public service agencies. Senior Citizen records of 1982 show how much the volunteers have helped alleviate the fiscal problems of the Senior program. Each day seventy home meals are packaged and delivered to home-bound elderly, while another 145 meals are served in the large Senior Citizen Center. This entire program is handled by Senior Citizen volunteers under the supervision of a nutrition manager. A record 27,000 volunteer hours were recorded at a value of approximately $91,000. In addition, over 17,500 miles were driven by volunteers delivering the meals to the home-bound. As a part of the program, the local Kiwanis Club has made a once-a-week commitment to deliver home meals for the past three years, as have the Elks and Emblem Clubs.

In 1982 a pilot program was started by a group of Coast Guard Chief Petty Officers called "Operation Senior Citizen." This group of men worked one weekend a month to do home repairs on Senior Citizen residences. During the year, they replaced hot water heaters in mobile homes, completed yard work, and "adopted" one elderly couple as a major project. This couple's home now has a completely new fence around their yard, a concrete ramp for a wheelchair, kitchen plumbing replaced, and a kitchen tile counter redone. Over twenty-five retired officers worked on this project with approximately $2,000 in donated supplies, $300 in cash and over 500 volunteer hours. This program has now been adopted as a model for the Coast Guard Chief Petty Officers nationally.

## Keep America Beautiful Program

As a part of this national program, Westminster celebrates "Keep America Beautiful" annually during the third week in April. Girl Scouts, Boy Scouts, and Camp Fire, Incorporated — forty-five groups in all—planted 1,600 seedlings and distributed over 3,000 trash bags in the City's 1982 Keep America Beautiful program. Over 13,500 elementary and secondary school students were involved in a clean campus competition repainting play equipment on parks, general school and park clean-up, and painting out graffiti. In addition, over 170 tons of trash were disposed of through the cooperation of the City's crews and the local Sanitary district who volunteered their dumpsters, trash-hauling trucks, and manpower. Elementary school children were encourged to enter an essay and poster contest to illustrate how the community

City of Westminster, CA

*All civic and service groups become involved in the annual Keep America Beautiful program.*

could be beautified. Publicity was donated through public service announcements, cable television, and local radio stations. A major outdoor advertising firm also donated billboard space to publicize the program.

Financial support was provided by the Westminster Mall, a group of over 200 merchants, and Carl Karcher Enterprises (Carls Jr.) to purchase beautification patches for youth groups participating. Reynolds Aluminum Company provided 24,000 beautification booklets to help youth understand the importance of recycling materials, beautifying and keeping the environment clean. The City received a national award from Keep America Beautiful, Inc. due to the many volunteer contributions in making the week-long program a success.

## Gifts Catalogue Program

Public budgets will not always stretch to cover all of the leisure needs of the Community. For this reason, the City developed a "Gifts Catalogue" which offers a variety of opportunities from donating $15 for a tree to $15,000 for a shade shelter, from volunteering to deliver home meals to Senior Citizens to paying for the cost of an entire recreation program. There are no limitations and volunteer opportunities are stressed, such as helping with youth sports, Senior Citizen programs, and a variety of community service projects including the graffiti eradication program outlined above.

## Clerical Program

Westminster has a group of retired professional secretaries who volunteer weekly to perform tasks, such as helping with registration, answering telephones, duplicating, filing and performing major typing projects. They bring a special energy and enthusiasm to the office and often serve as a real spark to full-time office staff. Presently the "volunteer office staff" works an average of ten hours weekly, saving the Department over $5,000 annually.

## Commission Program

The various City Commissions appointed by the City Council serve in an advisory capacity, attend regular monthly meetings, and may serve on special committee assignments. The Community Services and Recreation Commission, which is a five-person body, uniquely assists staff by providing one of its members as a chaperone who acts as the tour leader for all adult cultural excursions. This leader accompanies groups on trips, handles problems which may arise, and stays with the group until the excursion returns to its initial starting point. There are a minimum of six trips per year and the Commissioners rotate this assignment. The Commissioners enjoy this task because they feel they are contributing directly to a part of the services and programs of the Department.

The Youth Commission, which is composed of seven high school students, in a like manner helps make the Community become more aware of youth problems. They offer advice on matters relating to youth programs and services. In 1982 they sponsored a special project to raise funds for the Orangewood Home for neglected and battered children. Youth Commissioners canvassed local businesses for donations and then conducted a drawing which raised a total of $2,000 for the Home.

## Program Organization

Some of the steps used by the Community Services Department in the development and conduct of a viable volunteer program are outlined below.

## Recruitment

Volunteers are recruited through news releases, public speaking engagements, mailing to PTA, civic groups, and churches, quarterly department brochures (which are mailed to all residents in the City), and public service announcements on radio and cable television.

## Application, Placement and Training

All of those wishing to volunteer are asked to fill out a simple application form that is reviewed by the Volunteer Coordinator. Volunteers are interviewed and asked their special interests and where they would like to be placed. Particular thought and careful consideration is given to placement so that both the volunteer and the program will be mutually benefitted. Training is completed in two steps, the first being a general City orientation, and the second a more intensive training in the specific area assigned.

## Recognition

Studies have shown that continual recognition and positive strokes keep everyone feeling good about his or her job and this is certainly true about those who volunteer. In addition to on-the-job praise, the City of Westminster hosts an Annual Volunteer Appreciation Night Dinner for all volunteers. The Mayor, the City Council, the Community Services and Recreation Commission, and Department staff recognize each individual and group who has given money, time, and talent to the Department during the previous year. It is a fast-paced, enjoyable evening that revitalizes volunteers and assures them of their value to the City.

The Executive Director of the West Orange County Volunteer Bureau states that the number of volunteers is up by 75% this year and feels that this is directly related to President Reagan's stated position on the need for volunteers and the fact that people feel they really need to reach out and help because of cuts in local budgets and services.

Are volunteers a needed and valuable resource? We in Westminster know they are!

City of Westminster, CA

*This lively group of seniors volunteered to help serve an average of 240 meals daily.*

*Sam Migliazzo is Director of Community Services and Recreation for the City of Westminster, California.*

# Youth Volunteers in National Parks

*by Jean C. Henderer*

Through an agreement with one of this country's largest youth serving agencies, five National Park Service sites have received over 9,000 hours of free labor this summer.

Camp Fire, Inc., formerly Camp Fire Girls, and now a co-educational agency with approximately 300 councils nationwide and a membership of 250,000, is committed to provide educational experiences for boys and girls which will teach them to respect and appreciate their natural environment and expand career horizons in resource management work. Camp Fire councils were asked to identify high school age youth who had previous camp experiences and expressed interest in resource protection work. About 75 youth were identified and each ranked their preference for a national park site from a previously supplied list. Those selected were asked to pay their expenses to the site and an additional sum for food and weekend recreational expenses for the three-week period.

Camp Fire, Inc., also recruited and trained three recent college graduates with degrees in environmental sciences to act as counsellors for each session.

Before the youth were recruited, NPS regional offices were contacted and park staffs had an opportunity to determine if their work needs and camping space would mesh with the services volunteered by Camp Fire members. From those who indicated an interest, five sites were chosen to be used on the following dates:

*Connie Coutellier, Camp Fire, Inc.*

| | |
|---|---|
| July 6-27: | Ozark National Scenic Riverways<br>Mesa Verde National Park |
| Aug 3-24: | Gateway National Recreation Area<br>Carlsbad Caverns National Park |
| Aug 6-28: | Redwood National Park |

According to the agreement, each park provides supervision of the work projects and transportation within the park. Sleeping and eating accommodations are also provided by the parks and ranged from former Job Corps dormitories to tents and fire grills in primitive campgrounds with travel to the nearest town for showers and laundry.

*Connie Coutellier, Camp Fire, Inc.*

Upon entering the park, each youth was signed on as a member of NPS's Volunteers-in-the-Park program.

Work varied considerably among the parks with the priorities going to those projects needing immediate attention which could not be handled by the paid park staffs. At Mesa Verde, the volunteers worked in the Indian ruins repairing damage and also did trail restoration work; at Ozark National Scenic Riverways, the volunteers finished a portion of the Ozark Trail as well as clean-up on the Current River; at Carlsbad Caverns, work projects were assigned for both cave restoration work and above ground trail maintenance; at Redwood National Park, work included trail maintenance; and at Gateway National Recreation Area, volunteers helped plan the annual Harvest Festival while living

*Connie Coutellier, Camp Fire, Inc.*

Connie Coutellier, Camp Fire, Inc.

Connie Coutellier, Camp Fire, Inc.

in Ecology Village and learning about environmental interpretation.

This cooperative project was funded by grants from the private sector including Eastern National Park and Monument Association, private donors and the Atlantic Richfield Foundation. Planning, training and administrative costs were contributed by Camp Fire, Inc.'s, national headquarters in Kansas City, Missouri, and coordination with the National Park Service was provided by the Division of Cooperative Activities in Washington, D.C.

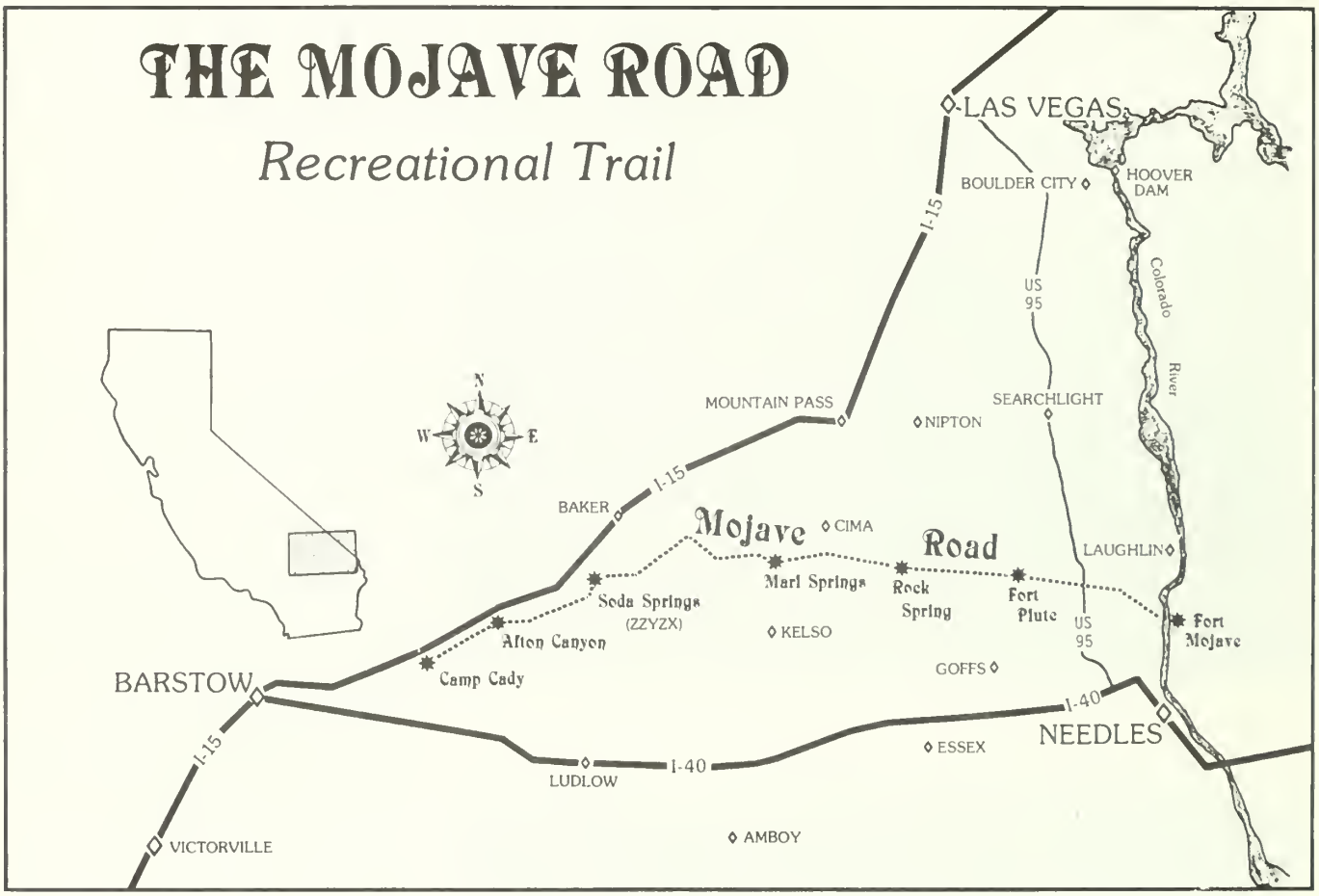
Shown on these pages are some of the volunteers at Mesa Verde National Park where they are working on a stabilization project of the Sun Temple. T-shirts especially designed by Camp Fire, Inc., are worn by the youth volunteers while they're working. The staff at Mesa Verde provided some interpretive information to the volunteers which helped when visitors asked them questions about their work and the area.

At Ozark National Scenic Riverways, deep in the tick and chigger country, it was demanding but rewarding work clearing shrubs and laying out a hiking trail.

*Jean C. Henderer is Chief, Division of Cooperative Activities, National Park Service.*

# Restoring the Historic Mojave Road

*by Kevin Freeman*




One of the most interesting and significant historic relics in the eastern Mojave Desert of Southern California is the Mojave Road. First etched as an Indian trail in prehistoric times, it evolved into a wagon route more than a century ago and then fell into disuse.

In 1981, a group of volunteers known as Friends of the Mojave Road entered into a volunteer agreement with the Bureau of Land Management (BLM) to restore the old road as a recreation trail. The Friends agreed to retrace and mark the almost forgotten route on the ground, and to produce maps and a printed guidebook so that today's visitors could again experience this way west.

For uncounted centuries this route, also called the Old Mojave Trail, served as a trade route between Mojave Indian villages on the lower Colorado River and tribes along the Pacific Coast. Adventuring Indians passed back and forth over the trail carrying on commerce in sea shells, pottery, foods, and other goods. In the 18th and 19th centuries, the friendly (unless provoked) Mojave showed their route, connecting sources of life-sustaining water, to the ever-increasing flood of white men seeking a way to survive through the desert beyond the Colorado River in the midst of the Mojave Nation.

Explorers and frontiersmen who used this trail included Francisco Garces in 1776, Jedediah Strong Smith in 1826, and Edward Fitzgerald Beale with the famous camel expeditions of the 1850's. The mid-1800's saw the trail transformed from footpath and packtrail into a wagon road.

During the next 30 years or so, the Mojave Road served as a major trans-desert wagon road for prospectors, mail wagons and the U.S. Army. When the Arizona

Kevin Freeman, BLM

*Friends of Mojave Road volunteer group work on a portion of road between Camp Rock Spring and Fort Pinto.*

Overland Mail was carried over this route in 1866-68, the Army established outposts along the road to protect the mail carriers and other travelers from occasionally hostile Indians. In its prime, the road ran from Ft. Whipple, near Prescott, Arizona, to Drum Barracks, just south of Los Angeles. In the late 1880's, the railroaders—not so dependent on water sources—found new and more level routes across the desert. Later wagon and automobile roads evolved from the tracks of the railroads, which is why the Mojave Road was abandoned and remains in relatively isolated country little marked by modern man.

## Valleys of Joshua Trees

Today, the Mojave Road traverses the 1.4 million acre East Mojave National Scenic Area—a part of the California Desert National Conservation Area—in an east-west line of about 130 miles, beginning at Ft. Mojave Indian Reservation on the Colorado River and ending near Camp Cady, just east of Barstow. Throughout most of this distance, the road is on BLM-administered public land as it varies in elevation from 500 feet at the Colorado River to over 5,000 feet in Round Valley in the Mid Hills Region, and back down to 1,000 feet as it approaches Soda Springs or Zzyzx on the western shore of Soda Lake. (Zzyzx, pronounced zi-zix, was named by Curtis H. Springer for a mineral springs resort no longer in operation. He coined the word to corner the market on the last word in alphabetical listings of place names.)

Because of the changes in terrain, a traveler over the trail is introduced to the full range of Mojave Desert flora and fauna in the midst of unparalleled desert scenic attractions, such as Ft. Piute, the New York/Providence Mountains, Cima Dome, Cinder Cones, Devil's Playground, a diversity of historical sites, and vast valleys of Joshua tree forests.

During 1962-80, Dennis Casebier, a U.S. Navy communications engineer and chairman of the Friends of the Mojave Road, conducted the document and field research necessary to understand the location and historical importance of the road. His research on the exact route took several years in the National Archives in Washington, D.C. There, Casebier found Army records, as well as other documents recounting tales of the emigrant wagon trains that made their way through the forbidding desert: tales of life-sustaining natural springs, marauding Indians, hazardous flashfloods, and of the lives (and deaths) of those heroic folks who made their way west along this road.

Once Casebier was sure he could accurately trace the old road, he set out in 1975 to test its appropriateness as a recreational hiking trail. It took him eight days to hike the 130 miles. Even though he found the hike was a wonderful experience, he decided few people would expend the energy or have the time to repeat his journey on foot.

In 1980, he was invited to guide members of a four-wheel-drive club over the road. Via CB radios in each rig, Casebier discussed historic sites, cattle ranches, mines, and other old and modern uses visible along the route. It took two days to

*Volunteers use topographical maps and compass to determine Mojave Road location near Soda Dry Lake.*

*Kevin Freeman, BLM*

traverse the trail by vehicle, and turned out to be both an eductional and recreational experience. Motorized four-wheel drive caravans over the trail, Casebier felt, probably would be the best way for many people to make the trek and enjoy the desert resources. Enthusiasm for the road and the experience of driving over it grew as the number of people who had knowledge of it grew. In May 1981, the volunteer group was founded by Casebier and 40 other "Friends," and restoration of the old road was begun.

Kevin Freeman, BLM

*Volunteers conduct minor road clearing on trail.*

## Hundreds of Volunteers

In the fall of 1981, hundreds of people showed up for the Friends' first working parties. Project work was coordinated by Casebier and BLM's representative, Kevin Freeman of the Needles Resource Area, a unit of BLM's California Desert District. Work on the trail included erecting rock cairns two feet high at major "intersections" to aid in route identification; making simple road improvements; measuring distances and surveying, and removing grass and brush from the old ruts in a few places so the wagon road appearance was restored. More than 4,000 photographs were taken—to be drawn on later for the *Guide.*

The volunteers' work was excellent and their dedication was tremendous. Bill Flint, a former public affairs officer for BLM's California Desert District Office at Riverside, said that after spending a weekend with the Friends of the Mojave Road, "I'm deeply impressed by two things: the tremendously diverse range of background, skills, and talents represented by its members, and the continuously displayed evidence that none of them expects to gain any more than the satisfaction of seeing the old Mojave road re-marked, re-mapped and, perhaps, re-visited by appreciative citizens."

Through 1981 and 1982, the volunteers continued to work on the road. By early 1982 it was time to prepare a draft of the *Guide.* The volunteers did the writing, editing, typesetting, printing, layout and artwork, photography, cartography. Volunteer resource specialists in many fields evaluated reference material. Communications among the Friends were facilitated by monthly "Mojave Road Reports." Financial support was based upon contributions. T-shirts and "Mojave Road Work Certificates" were developed as a way of thanking individuals for volunteer work.

## To Open this Year

By November 1983, the 130 miles of the road will be formally established and opened as a recreational trail that can be used by four-wheel-drive vehicles, horseback riders, and hikers. The entire route has been marked with the rock cairns, careful maps have been completed, and an extensive narrative developed to assist adventurous travelers. *The Guide to the Mojave Road,* to be completed in December 1983, also will include the story of the modern rediscovery of the road,

Kevin Freeman, BLM

*Rock cairns are built to mark the trail.*

of the project to document its history, and of the extensive effort by the Friends to transform it into a 20th Century recreational trail. (The *Guide* may be requested from Friends of the Mojave Road, P.O. Box 307, Norco, CA 91760. A briefer version, derived from the Friends' Guide, will be available in 1984 at no cost from the BLM Needles Resource Area, P.O. Box 305, Needles, CA 92363; phone 714-326-3896.)

The Mojave Road project was immense and time-consuming and, with current budget restraints, could not have been accomplished without the volunteers. Some of their expenses were recorded in BLM's volunteer work records and submitted by individual volunteers to back up their tax deductions as charitable contributions. Even though this option was available to all the volunteers, fewer than a third reported their out-of-pocket costs for this purpose.

The project's benefit-to-cost relationship, from BLM's perspective, is better than 20 to 1. By conservative estimate, over a two-year period the volunteers accomplished public-service work worth at least $147,350. Of this total, volunteer time was valued at $105,350; their mileage costs, an estimated $20,000, and miscellaneous costs, $22,000. BLM's estimated costs totaled $6,500—$5,400 for pro-rated salaries of BLM employees associated with the project, $600 for our mileage, and $500 for our other expenses.

During the project the Friends group has grown from its initial 40 members to more than 400. About 65 percent of the volunteers are between 18 and 24 years old; 20 percent 55 and above, and 15 percent under 18. About 40 percent are women.

## The Richest Reward

Why have Dennis Casebier and other volunteers spent so much time and effort on this project? When I put the question to Casebier, he replied: "In asking for volunteers to come forward and help with this project, I was asking individuals to invest their time and money (it's expensive to make these trips to the desert), to go out and move rocks and pull weeds and do all sorts of things—all for no reimbursement."

"Their only pay are the certificates handed out along the way and the satisfaction that Bill Flint has referred to."

"If a net is tossed out upon the waters to catch people with this kind of approach, the fisherman should not expect to catch many, but the ones caught will be very special. And that, perhaps, is the richest reward of all from the entire Mojave Road experience—all those very special people stepping forward to do what needed to be done."

"Many are educators, some are doctors, lawyers, writers, engineers, scientists, printers, photographers, typists—people from all walks of life. The common thread is their rare willingness to labor and provide their resources quietly for a cause where the only reward they could expect was 'the satisfaction of seeing the old Mojave Road remarked, re-mapped and, revisited by appreciative citizens.'

"To them, these Friends of the Mojave Road, I say many thanks for a job well done. Thank you for your support and friendship!"

*Kevin Freeman is a Desert Ranger for the California Desert National Conservation Area, based at the Bureau of Land Management's Needles Resource Area, Needles, CA. Previously, he served as a National Park Service Ranger at the Everglades, Biscayne and Shenandoah National Parks.*

# C.A.M.P.E.R.

*by W. L. "Mike" Brittain*

Maryland is one of the truly unusual states in this nation because of its varied topography, weather and people. Situated slightly left of center in this lovely state are the Catoctin (Kuh-tock-ton) Mountains and in the middle of this small mountain chain lies one of the prettiest national parks in our nation, Catoctin Mountain Park. The park encompasses an unusual installation—Camp David—where the chief executive of the United States has come for many years for "R&R" (rest and relaxation).

The most unusual feature of this particular national park is the volunteer organization that has sprung up in support of it. The original thought for such a group came from the Superintendent of Catoctin Mountain Park, Tom McFadden. He proposed the idea to a good friend, Colonel Les Holmes (U.S. Army Ret.) past president of the National Appalachian Trail Association, who liked what he heard and took off with it.

In due time, he enlisted the help of Glenn C. Michel, a Frederick, MD, lawyer and outdoor sporting enthusiast. It was "Mike" Michel who came up with the name for the volunteer organization, C.A.M.P.E.R., an acronym meaning Catoctin Area Mountain Park Environmental Resource.

Mr. Michel was also responsible for the organization becoming "official." He had C.A.M.P.E.R. duly registered and incorporated in the State of Maryland. It is a non-profit organization and receives no funds from any federal, state or local entity. There is a nominal membership dues fee that is used to cover the

Catoctin Mountain Park

Catoctin Mountain Park

*C.A.M.P.E.R.'s Adopt-A-Cabin project includes upgrading facilities.*

few expenses that do occur in the ordinary course of "doing business," such as stamps and stationery, etc.

C.A.M.P.E.R. has been able, from time to time, to assist Catoctin Mountain Park (and, thereby, the National Park Service) in a financial way with occasional purchases of diverse and small sundry items. Funds for these purchases are gleaned from the sale of patches and some donations.

Another of the endeavors (and costs) is the quarterly newsletter, HAND-IN-HAND. This is a newsy forum written jointly by park staff and volunteers, but edited and printed by volunteers. The advantage of having both staff and volunteers as writers is very real. It gives both a common vehicle in which to exchange thoughts and an opportunity in which to advance specific ideas and present definite programs. Fortunately for C.A.M.P.E.R., the volunteers in charge of this publication are a husband and wife team, Jim and Barbara Gilford. Jim is an outdoor sportsman and writer, and Barbara is a professor at Hood College.

## League for the Handicapped

The League for the Handicapped has been using the camping facilities at Catoctin Mountain Park since 1937. Specifically, the resources at Camp Greentop, the nation's first residential camping facility for the handicapped, has been the center for such diverse activities as sailing, canoeing, and overnight tent camping in

Catoctin Mountain Park

Catoctin Mountain Park

*Volunteers enjoy a brief respite from a trail improvement project.*

Catoctin Mountain Park

Catoctin Mountain Park

*Volunteers rebuild the Collier's Hut.*

the park. Camp counselors are nearly at a one-on-one basis for these handicapped people and come from all over the U.S. and, last year, from five foreign countries.

The summer camping term is divided into three, two-week terms for the children, teens and adults, in that order. Last year, a record 400 handicapped people enjoyed a summer of friendships, sports, games, crafts and nature exploration at Catoctin Mountain Park.

The prodigious amount of volunteer work and hours is further enhanced by Student Conservation Aides (S.C.A.'s), practicum students from Hood College, Slippery Rock College, Penn State, Shepardstown, etc., and Youth Conservation Corps (Y.C.C.) from local high schools in Frederick and Washington County, MD. It has been a very successful and satisfying experience, over the years, to have these excellent young people aboard.

## Volunteers' Contributions in 1982

The volunteer response to assist Catoctin Mountain Park in 1982 was spectacular. At year's end, 350 volunteers contributed over 5000 hours, providing a variety of visitor and resource preservation services.

This year's program was launched in March at our "get acquainted" dinner sponsored by C.A.M.P.E.R. The projects were outlined and the VIP recruitment drive was initiated. Through local newspaper articles, displays at the Visitor Center and personal

Catoctin Mountain Park

*C.A.M.P.E.R. President Mike Brittain works in the Visitor Center at Catoctin Mountain Park.*

contact by the park staff and C.A.M.P.E.R., the word spread.

The following briefly describes the specific contributions of our volunteers in 1982. Recognition of their valuable assistance was made at the annual VIP awards banquet held in November and through several articles which appeared in the newsletters.

**Visitor Center Operations**

-From June through November, volunteers covered the Visitor Center on the lieu days of the receptionist and assisted on busy weekends and special events. This enabled the Visitor Center to remain open all year on a daily basis and allowed the Rangers to work more in the field.

**Interpretive -**

Volunteers presented many of the regularly scheduled interpretive programs including the winter walks, charcoal hikes, cross-country ski seminars, orienteering, wildflower walks, children's nature walks, family walks, fall color walks, photography seminar, and fly tying seminar. The Whiskey Still interpretive program was entirely presented by volunteers this year. VIP Wayne Groft trained 3 assistant still operators so the program could be presented each weekend from June through October.

**Resource Management -**Several groups who annually camp at Catoctin volunteered this year to assist with the upkeep of the camping areas. The National Campers and Hikers Association held a weekend outing at Owens Creek Campground and completely renovated two campsites. The sites were stabilized, graded

*Boy Scouts volunteered their services while working on their Order of the Arrow program.*

*Catoctin Mountain Park*

and filled and replanted with native ground vegetation. Later in the year, YCC and CETA crews worked extensively in this campground to improve all sites. The work leaders for these crews were both volunteers; David Kreason, an SCA volunteer, and Mr. Elmer Goldhammer, a retired person. Mr. Goldhammer donated his entire summer to this project and was a primary reason for its success.

Poplar Grove Youth Tenting Area received general cleanup and site restoration efforts from several groups as part of their activity program while visiting the park. One local Boy Scout Troop has been recruited to prepare the site for opening each year.

The Thomas Johnson High School science club constructed our first deer enclosure. This will serve as an important tool to assess the browse impact of deer on the forest.

Students attending the outdoor school at Greentop conducted gypsy moth larvae surveys, and helped to survey and destroy egg masses. These resource management activities were integrated into their environmental education program so the students could understand the nature of this pest problem and our management efforts.

Hood College students from a resource management class conducted the fall deer survey. Arrangements were made to continue this project annually.

On April 29th, a group of "true volunteers" helped extinguish a small forest fire (1½ acres) near Wolf Rock. The timely effort of these hikers helped prevent the fire from becoming a major threat to the park.

The Stream Ecology Committee submitted their final report in

1982, culminating two years of work toward the preservation of the park's aquatic resources. Work also proceeded to develop a fly fishing brochure for the public and a trout management plan for Owens Creek.

**Cabin Camp Maintenance** -Users of Camps Misty Mount and Greentop completed valuable service projects in 1982 which helped defray the operating costs for these facilities. C.A.M.P.E.R. sponsored several work weekends preparing Misty Mount for opening and making repairs to cabin roofs and porches. A large contingent of volunteers from Plast Ukranian Church, a long-time user of Misty Mount, participated in the first work weekend. The annual spring cleanup of Camp Greentop was completed by Boy Scouts working on their Order of the Arrow program. In the fall, the National Campers Civic Association, Rockville United Methodist Church, and the League for the Handicapped stained benches, raked leaves and washed windows as service projects.

**Horse Patrol** - The volunteer horse patrol began operation this year to assist with visitor contact along trails and in remote areas of the park. Observations of wildlife, trail conditions and boundary problems were also made on a regular basis. Patrol members received a general orientation to park operations and were trained in radio communications and first aid.

The horse patrol also performed minor trail maintenance, held a competitive trail ride and several pleasure rides to promote C.A.M.P.E.R. and volunteerism in the parks.

The ''Adopt-A-Cabin'' plan, entered into between the National Park Service and C.A.M.P.E.R. is, without doubt, the most ambitious and far-reaching program undertaken by the volunteer organization since its inception.

When it was determined that locally-owned camping areas could not satisfy the increasing demand for campsites from families and individuals who wanted camping facilities for relatively short periods of time, C.A.M.P.E.R., under the direction of Clinton A. Walker, Jr., the manager of a local J.C. Penney store, and the National Park Service entered into an agreement whereby C.A.M.P.E.R. would operate Camp Misty Mount for the period April 15, 1983 through October 30, 1984 for the purpose of making the facilities available to the public.

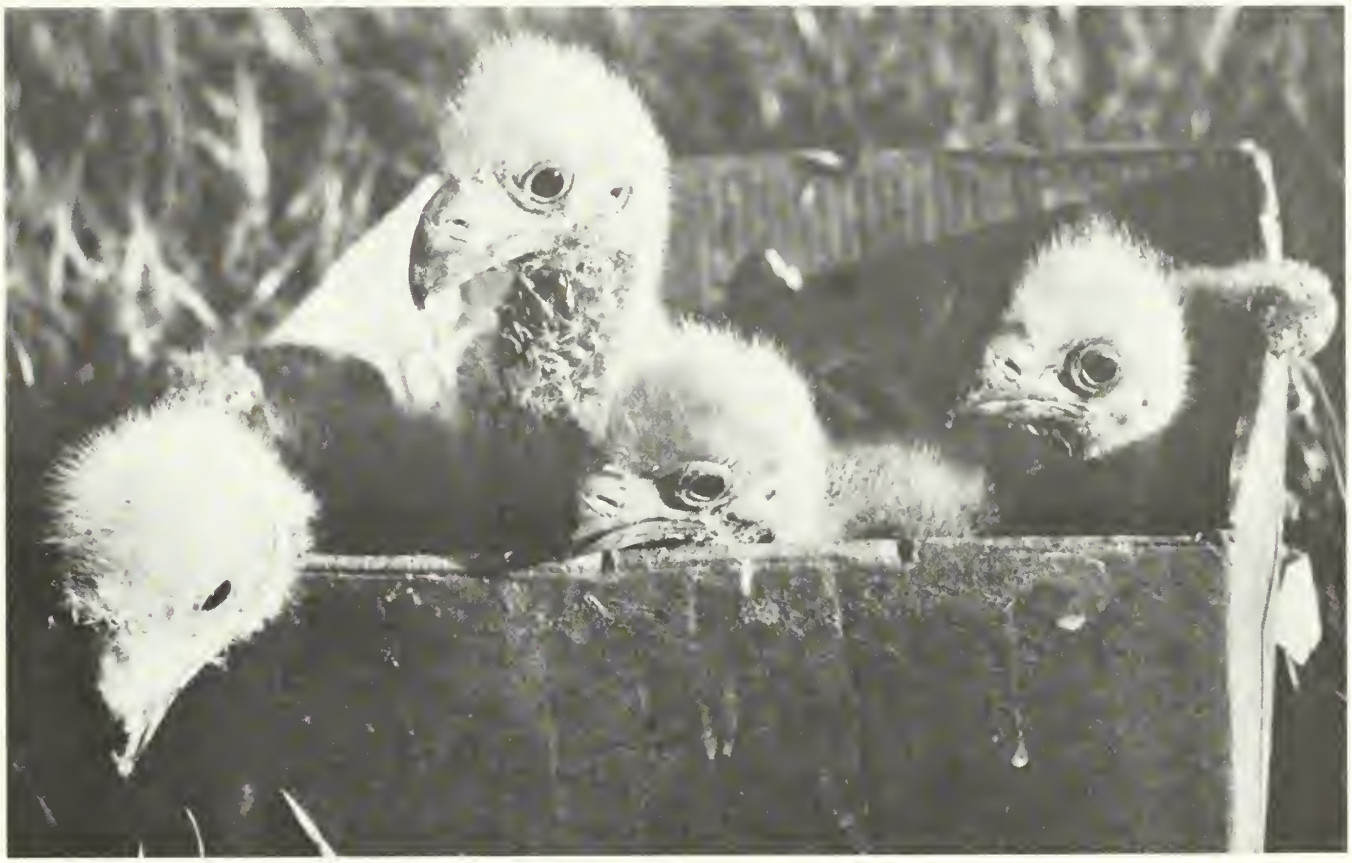
All services are provided by C.A.M.P.E.R. as outlined by the National Park Service and funds from all activities connected with Camp Misty Mount are to be used for: (1) paid staff, (2) camp maintenance and operation (pay utilities, sewer, electric, pool operation, first aid supplies, training supplies, telephone), (3) upgrade facilities, maintain and preserve the natural environment of the area, and (4) improve accessibility of park facilities for the disabled. The cooperative endeavors for this ''Adopt-A-Cabin'' program is proving to be a successful and beneficial project for the visiting public.

C.A.M.P.E.R. is a successful volunteer organization that has contributed thousands of staff-hours to Catoctin Mountain Park, and most assuredly benefits everyone involved.

*W.L. ''Mike'' Brittain is President of C.A.M.P.E.R., Inc.*

# For the Birds: Volunteers in Research at the Patuxent Wildlife Research Center

*by Irene E. Magyar*



*James W. Carpenter, US F&WS*

*These 2½ week old eaglets are on their way to a wild nest.*

High above the forests of New York state, a male and female bald eagle perch near their nest, attentive to the needs of two three-week- old eaglets who are demanding food. The adult eagles will care for the young until the baby eaglets are ready to leave the nest and go off on their own—at approximately four months of age.

To a casual observer, all activity in and around the nest appears to be normal. Only someone well familiar with this eagle family knows that the little eaglets are not the progeny of the adults who are feeding them and that the adult male was born in Minnesota. Of the entire family, only the adult female is native to this area of New York state.

This strange assortment of eagles, now tied together as a family unit, was brought together through efforts currently underway by the state and federal governments to restore eagle populations in the lower 48 United States. A lot of the work that went into bringing the family of eagles together was done by volunteers.

## Endangered Wildlife Research Program

Patuxent Wildlife Research Center is the headquarters for the Endangered Wildlife Research Program of the U.S. Fish and Wildlife Service. Begun in 1965, this program is now responsible for obtaining information on endangered species found in the United States, maintaining captive populations of these species for study and, where possible, breeding captive animals to produce individuals to bolster populations in the wild. Studies at Patuxent are aimed at restoring not only populations of bald eagles, but also populations of the Mississippi sandhill crane, Aleutian Canada goose, Andean condor, California condor, Puerto Rico parrot, masked bobwhite, and black-footed ferret.

The eaglets released in New York to be raised by foster parents were among eight produced in captivity during one year at Patuxent, where captive bald eagles have been bred since the mid-1970's with the help of volunteers. Limitations in the Fish and Wildlife Service's Endangered Species budget and restraints on hiring led Dr. James Carpenter, head of Patuxent's captive breeding program, to turn to volunteers for help.

Breeding pairs of eagles are maintained in large pens on the grounds of the Research Center, located between Baltimore and Washington, D.C. near Laurel, Maryland. After the eagles lay their first clutch of two or three eggs, the eggs are quickly removed and placed in incubators. After hatching, the eaglets are hand-raised for almost three weeks, until they can regulate their own body temperature. It is during this time of hand-raising that volunteer help is so critical since the eagles must be fed every three or four hours, from sunrise until late into the night, seven days a week.

Some of the volunteers that work with Jim Carpenter to get these tiny eaglets through their first crucial weeks of life are college students in veterinary science or wildlife management, or recent graduates who are seeking experience before pursuing careers. They find out about the program through magazine or newspaper articles, or through lectures given by Dr. Carpenter. Other volunteers who participate in the eagle program are Fish and Wildlife Service employees working in other offices and divisions at Patuxent. These individuals give up their evenings and weekends to feed and care for the baby eagles.

## Whooping Cranes

In addition to helping with the eagle program, some of Patuxent's volunteers are involved in caring for the sandhill and whooping cranes that are kept on the complex. Unique to the North American continent, whooping cranes are large white birds with long necks, red and black heads, and sharply pointed beaks. Once, the whooping crane flourished in our nation's grassy marshlands and bogs. Then, because of habitat losses to agriculture and development, the whooping crane rapidly began to disappear. In 1941, only 21 whooping cranes remained in the wild.

To guard against the demise of this remaining whooper population, scientists at Patuxent removed eggs from whooping crane nests and took them to Patuxent to be raised artificially. Although wild whooping cranes normally lay two eggs, the adults fledge more than one chick. Thus, removing one egg did not harm the wild population.

Raising young whoopers in captivity proved to be very difficult. Of the 43 young originally hatched from eggs at Patuxent, only 12 survive today. Also, getting the whoopers to breed in captivity was a challenge since hand-raised whoopers imprinted on people rather than on members of their own species.

To prevent imprinting on humans, greater and Florida sandhill cranes have been used since 1978 to incubate whooper eggs and to raise most of the chicks. This method, combined with artificial insemination, observations on their behavior to determine which whoopers would make suitable mates, and the use of artificial lighting to simulate the day length experienced by whoopers during their breeding season in northern Canada, have led to increased success in Patuxent's whooping crane captive breeding program. Again, Patuxent volunteers provided staff assistance for many of these projects.

## Volunteers

Cindy Driscoll and Paul Tritaik are two former Patuxent volunteers who are now temporary employees for the Fish and Wildlife Service. Cindy, who begins veterinary school this fall, is currently involved with Patuxent's crane program. Before coming to the Research Center as a volunteer, she volunteered for veterinary organizations, working with both large and small animals. Her motivation for volunteering at Patuxent was to gain research experience. When she first arrived at the Research Center during the fall of 1981, she acted as a caretaker for the various quail species kept at Patuxent (a population of eastern bobwhite quail, *Colinus virginianus*, is used to perfect experimental techniques that will eventually be used on the masked bobwhite, *Colinus virginianus ridgwayi*). Later, she fed and cared for the captive adult eagles and the Andean condors (Andean condors are used to gather information applicable to the captive breeding of the endangered California condor).

Cindy's undergraduate degree was in education, so when she was not at Patuxent working as a volunteer, she attended the

Irene Magyar, US F&WS

*Cindy Driscoll and Paul Tritaik work with captive Andean condor.*

University of Maryland to take the courses necessary to qualify for veterinary school.

Paul Tritaik was a student at the University of Maryland, studying fish and wildlife management. His strong interest in reproductive physiology inspired him to approach Dr. Carpenter and to volunteer for the captive breeding program. He also felt a need for more direct experience with animals and research.

Initially, his volunteer duties were as caretaker for the eagles and masked bobwhite. After working as a volunteer for about six months, the Fish and Wildlife Service was able to hire him as a temporary employee.

He is now caring for the eagles, condors,quail, and cranes as well as being a ''jack-of-all-trades'' — building pens and repairing waterlines. Part of his job involves observing eagle behavior, an important aspect of eagle propagation when trying to match compatible eagles for mating. Paul's future plans involve going back to school for an advanced degree in animal reproductive physiology. Eventually, he would like to conduct reproductive research on exotic species.

Vicki Perros, Nina Anderson, Marcie Jones, and Patti Miller are four energetic women employed in data analysis and clerical jobs at the Patuxent Wildlife Research Center. Vicki, Nina, and Patti all have undergraduate degrees in animal science from the University of Maryland. They accepted non-biological positions with the Fish and Wildlife Service as a way to get started in their careers. Marcie has no biological background at all.

For three weeks during the spring, these four women leave their full-time jobs at Patuxent only to return in the evenings and on the weekends to care for the baby eaglets that are being raised for fostering. Remember, eaglets require five or six feedings a day, once every two or three hours, seven days a week. Vicki, Nina, Marcie, and Patti shared this burden—all on volunteer time—with four other people. Their motivations for doing this are mixed. For Vicki, Nina, and Patti it was a way to gain experience and keep themselves active in their field of study. Marcie, however, openly admits that she had never worked with animals before at all; she just really wanted to get involved.

Feeding baby eaglets, especially if you are new at it, can prove to be an experience. Usually, the meals fed to the baby eaglets are prepared before feeding time so that the volunteers only need to administer the meal. One night, however, no food was anywhere to be seen when the volunteers started their shift. Faced with eight very hungry chirping eaglets, the volunteers had little choice but to go up to the Patuxent barns, find the dead chickens and fish that are fed to the eaglets, and chop them up into pieces that the eaglets would accept.

## Breeding Bird Survey

The captive breeding program is not the only program at Patuxent which relies on volunteer help. The Breeding Bird Survey, coordinated by another group at Patuxent, has been conducted across the country since 1968 by volunteers. From information collected during the survey, the ranges of all bird species breeding in North America are mapped and both long and short term changes in the ranges can be detected from year to year.

Sixty coordinators for the Breeding Bird Survey (one for each state and the Canadian provinces), who are themselves volunteers, recruit additional volunteers to run the state's survey routes. Approximately 1850 routes, each 25 miles long, are run in June throughout the country each year.

Volunteers start their routes just before dawn and stop every half mile, for a total of 50 stops. At each stop, the number of different species that are singing is counted along with the number of vocalizing individuals within one species. Counting their travel time to and from the route, the

James W. Carpenter, US F&WS

*Volunteers Cindy Driscoll and Susan Cullom weigh a hand-raised sandhill crane.*

volunteers spend approximately six hours completing each survey.

Often, the primary surveyor will have a companion, also a volunteer, who will assist with the species identifications. If at least half of the surveys are conducted by two people, and each lasts for 6 hours, each June the Fish and Wildlife Service receives a whopping 16,150 hours of volunteer effort.

## Bird Banders

Volunteer efforts that contribute to our country's ornithological knowledge does not stop with the Breeding Bird Survey. Approximately 1200 people throughout the country are licensed master bird banders. Throughout the year, volunteer banders put up mist nets to catch any species which happens to fly through. Once caught, the birds are banded and released. Each bander keeps a careful record of individual birds that have been caught and notes when and where the banding took place. If some of the birds caught in his or her net already have bands, the bander notes this also.

All of this information is sent to Patuxent, where Fish and Wildlife Service employees compile it into records of migration and movement patterns for each species. Often during the course of a year, an individual bander will spend as much as 120 or more hours banding birds, and a fair amount of additional time organizing and submitting the data.

The information gathered by Patuxent's Breeding Bird Survey and Bird Banding Laboratory is available to anyone with a specific request. Through the efforts of volunteers willing to put in hours of their time, the Fish and Wildlife Service can offer researchers, students, ornithologists, other government agencies, and private citizens one of the most comprehensive data on bird populations available anywhere in the world. And through the efforts of volunteers such as Cindy, Paul, Vicki, Nina, Patti, and Marcie, those species whose populations are threatened or endangered are now being restored.

*Irene Magyar is a Volunteer Coordinator for the U.S. Fish and Wildlife Service, Washington, DC.*

# Volunteer Programs in the East Bay Regional Park District

*by Richard C. Trudeau*

From its urban parks on San Francisco Bay's heavily populated shoreline to its remote and beautiful wilderness preserves, East Bay Regional Park District provides recreation for Sunday picnickers and trail-toughened hikers alike.

Serving a two-county population of about 1,694,000 people, the district operates 41 regional parks and nine regional trails from its headquarters in Oakland, California. Landholdings total more than 53,000 acres.

Support from the people it serves is vital to a public agency such as the park district. And one reassuring expression of that support comes from volunteers, both corporate and individual, who help to bridge the gap between available funds and optimum recreational programming.

Although volunteers have helped East Bay Regional Park District for many years, the volunteer effort took its most innovative turn after passage of Proposition 13 in 1978.

## Adopt-A-Park Program

Passage of this statewide tax-limiting initiative caused reduction of park district tax revenues by 47 percent during 1978-79. In an effort to keep park and recreation facilities open despite funding cutbacks, district management devised an adopt-a-park program.

The concept involves a partnership arrangement between the park district and a local business or industry, in which the firm "adopts" a park for a three-year period or longer, underwriting some park maintenance, operation or improvment costs. When feasible, "adoption" includes volunteer assistance from the firm's employees as well as cash

*Nancy McKay, East Bay Reg. Park Dist.*

*Eric Clayton, II, of Hayward becomes a blacksmith's apprentice under the watchful eyes of park district naturalist Dave Collins in the restored barn at Garin Regional Park, Hayward. A grant from Mervyn's department store enabled Garin's special interpretive program dealing with early-day farming methods and implements.*

contributions. Specifics of the arrangement can be tailored to needs at the park and to preferences and resources of the firm.

Through careful research, district staff tries to match likely projects with corporate interests. An initial contact is made to see if a corporation wishes to help. If the response is positive, a confidential and detailed follow-up proposal is made.

The first firm to "adopt" a park was Oakland-based Kaiser Aluminum & Chemical Corporation. Because of Kaiser's interest in Oakland, Roberts Regional Recreation Area was chosen—a park within the city limits. Kaiser agreed in early 1979 to help rehabilitate Roberts, making a verbal commitment for three years of "adoption."

Cornell C. Maier, Chairman of the Board and Chief Executive Officer of Kaiser Aluminum, told park district directors at the time that his company was bringing "a number of resources to the partnership, including financial and human..." Maier said his "greatest personal interest is to help young people." Roberts was selected, he added, because it attracts more than 250,000 visitors annually, "a place enjoyed by all the people, but essentially the young and elderly."

As a first step, a check for $15,000 was given by Kaiser to the district, while company technicians and engineers made an assessment of the park's needs.

Projects completed by Kaiser at Roberts during the next three years included replacement of old playground equipment, addition of an irrigation system, cash contribution to major swimming pool repairs, and funding for extension of a regular city bus line to the park entrance during summer months, with free rides for youngsters aged 16 and under.

Kaiser employees organized annual volunteer work days at Roberts, during which they built playground equipment, an underground sprinkler system, and ballpark area seating. Several hundred volunteer workers helped out each time.

Kaiser contributions, cash and in-kind, totaled more than $50,000 per year. No strings were attached to this assistance, and no contract or other legal document was needed.

Other firms besides Kaiser soon became involved in the "adopt-a-park" program. One was Mervyn's Department Stores, based in Hayward, California, a division of Dayton-Hudson Corp. Mervyn's interest has been at Garin and Dry Creek Pioneer regional parks in the Hayward hills. An interpretive program is being developed there, centered at the Garin barn, to showcase blacksmithing and other aspects of East Bay pioneer ranch life.

A grant from Mervyn's of $15,000 has enabled compilation of a resource guide and interpretive master plan, plus purchase of audio-visual equipment. Blacksmithing demonstrations and naturalist programs now are presented at the barn, while full program development continues.

## Nocturnal Animal Hall

Mervyn's also has contributed, along with Oakland Lions Club, Chevron U.S.A. and an anonymous donor, to a unique Nocturnal Animal Hall under construction at the Environmental Center of Tilden Regional Park in Berkeley, California. When completed, the Nocturnal Animal Hall will permit visitors to view captive nocturnal animals in surroundings closely resembling their normal wilderness habitat.

Redwood Regional Park in the Oakland hills also has benefited from "adoption." The park's benefactors are local chapter members from Telephone Pioneers of America, a service organization of telephone company workers both active and retired.

In a ceremony at Redwood in 1980, more than 20 members of the Pioneers planted six handsome redwood trees as a memorial to deceased members. The event also marked the start of Pioneers' park affiliation and the organization's 69th anniversary.

Since then, the Telephone Pioneers have arranged for construction of a jungle gym and an exercise apparatus at Redwood Regional Park. Plans are now being made for the addition of some horseshoe pits and volleyball courts.

"Adopt-a-park" has been an innovative way of involving corporations in the parks and recreation effort. But other more traditional volunteer programs of East Bay Regional Park District also have been successful in enlisting the help of community service organizations and public-spirited individuals.

## Park Advisory Committee

Perhaps hardest working of all volunteers are the 29 members of East Bay Regional Park District's Park Advisory Committee. These

Nancy McKay, East Bay Reg. Park Dist.

*With naturalist Jan Southworth at the bow and Steve Christiansen at the stern, two volunteers help paddle a tule boat across San Francisco Bay, successfully testing the seaworthiness of Indian-type water craft.*

men and women are appointed by the park district board of directors, two county boards of supervisors, county conferences of mayors, and four other public agencies.

Serving without pay, they advise park district directors on many complex issues, such as fee policies, naming of parklands, budget preparation and master plan updating. Appointment to the PAC guarantees long hours in the service of district and community.

Service clubs often lend a hand to the park district, too. A recent example was Ardenwood F.U.N. Workday, which brought together several hundred service club members from Fremont, Union City and Newark (thus F.U.N.) for a day of construction projects at Ardenwood Regional Preserve in Fremont, California.

Ardenwood, a handsome mansion with surrounding farmlands, is being developed as an historic preserve for demonstration of daily life and farming techniques on a 19th century estate.

At the workday, service club members enthusiastically swung picks and shovels to build a corral, raise a gazebo, plant walnut trees, and demolish some deteriorating farm structures. There was spike-driving as well, by a group of railroad buffs who are recreating a horse-drawn railroad that once served area farmers. They pounded in a gold-colored spike and put down the county's first section of narrow gauge track in some 80 years. Such volunteer efforts likely will play an important role in Ardenwood's continuing restoration.

## Trail Construction and Maintenance

Another park district function where volunteers provide vital assistance is trail construction and maintenance. East Bay Regional Park District has more than 500 miles of internal trails and almost 106 miles of connecting ones.

Organizations whose work parties help the park district maintain this network include the Sierra Club Trails Committee, State Horsemen's Association, East Bay Area Trails Council, and of course, the Scouts whose rank advancement projects help clear the way for hikers and horsemen.

Although they are paid by the state for their efforts, California Conservation Corps' young men and women deserve mention too, for more than 10 miles of trail they have constructed or repaired at no direct cost to the park district.

After construction, trails also must be patrolled. Much of this task is accomplished by the 16 members of East Bay Regional Park District's volunteer horse patrol, the "eyes and ears" of the park district's public safety department.

Equipped with radios and a knowledge of first aid, these ranchers and businessmen take turns riding district trails almost every summer weekend. They are often first at an accident scene, helping victims until other rescuers arrive. Horse patrol members also report trail conditions and hazards for subsequent attention of regular park staffers.

The patrol performs no law enforcement duties. These are the function of the park district's 34 full-time public safety officers — but they have volunteer assistance too.

## Reservists

Supporting the paid officers are 25 reservists, who put in a minimum of 18 hours per month, without any pay other than a uniform allowance.

Reservists work at regular full-time jobs in addition to their park district commitments. Some are teachers and businessmen; one operates a nursery. Their efforts provide an additional 4,000 to 5,000 staff hours per year to the public safety department.

## "Walk-In" Volunteers

Besides organizational efforts, individual "walk-in" volunteers also are welcome at the East Bay Regional Park District. If a volunteer has a specific project or

park in mind, he or she is referred accordingly. Otherwise an effort is made to match experience and skills to needs of the district.

Part of the matching process is a volunteer application form on which personal data, special skills and hours available are listed. The form also includes a Volunteer Code, adapted from the American Association of University Women's "Code of Ethics for Volunteers." This outlines responsibilities of both volunteer and district, the better to ensure a mutually satisfactory experience.

Influence of volunteers has been felt in almost every corner of the East Bay Regional Park District, on projects both large and small. Here are some examples:

— Naturalist Jan Southworth of Coyote Hills Regional Preserve in Fremont took on an "experimental archaeology" project of building "Kon Tule," a reed boat duplicating as closely as possible those constructed by California Indians. A core group of four or five volunteers, augmented by some 45 "drop-ins," helped with the painstaking task. "Kon Tule" and a successor craft were proven seaworthy in cross-bay voyages in 1979 and 1981. Now a small group of volunteers is helping to reconstruct an Indian village site at Coyote Hills.

— Another naturalist program involving volunteers is under way at Black Diamond Mines Regional Preserve near Antioch, once the site of California's largest coal mining operation. A volunteer photographer is assembling a specimen and slide collection of plant life at Black Diamond. Other volunteers are graduate students working on an archaeological excavation at the mining town site of Somersville, under direction of the Lowie Museum of Anthropology, University of California, Berkeley.

Still another volunteer is restoring tombstones at Somersville's historic cemetery. Others are helping to transcribe oral history tapes and to trace descendants of coal mining pioneers who inhabited 19th Century Somersville and Nortonville.

The volunteer program at Black Diamond was formalized in April after six months of careful planning.

— East Bay Regional Park District maintains a renowned collection of native California plants in its Botanic Garden at Tilden Regional Park. A mainstay of the garden's year is its annual native plant sale, assisted by volunteers from the California Native Plant Society. Propogations from the native plant collection are sold out in a brisk two hours. During the rest of the year, a small group of CNPS volunteers helps with potting, weeding, and collecting and packaging seeds.

— Last summer and again this year East Bay Regional Park District operated a summer bus program to ease public transportation to parklands. Senior citizens, schoolchildren, organizations for the disabled, and other groups without private transportation were able to schedule day-long bus trips at nominal fees to parklands many had never seen before. But it would not have been possible for some of them without the help of Red Cross volunteers from area high schools, who acted as bus attendants to assist physically disabled passengers. The summer bus program won a 1983 Certificate of Achievement from San Francisco Bay Area's Metropolitan Transportation Commission.

## Conclusion

As these examples show, virtually no park district activity is unaffected by the work of volunteers. And this level of involvement is only likely to increase in the future. Corporate, community and individual participation are vital to a park district in an era of dwindling funds for public agencies. Moreover, working with volunteers helps the park district to keep in touch with the people it serves. While using their skills, the district can learn more about the public's needs.

*Richard C. Trudeau, is General Manager, East Bay Regional Park District, Oakland, California.*

# Volunteers at New York State Historic Sites

*by Maurice H. O'Brien*

You might think that a statewide system of historic sites with a $4.5 million annual budget would have little need of volunteer support. Why should it, with thirty-four historic properties, a central office that includes a sophisticated Collections Care Center, and a staff of professionals trained in a variety of disciplines? Orin Lehman, Commissioner of the New York State Office of Parks, Recreation and Historic Preservation, which administers the historic site system, doesn't accept this conclusion. "Volunteers are invaluable to us whether they demonstrate 18th-century crafts, take visitors through historic mansions, or file the previous month's correspondence," he responds. "Without them, the many programs that we offer the public would be greatly diminished."

New York's state historic sites represent not just a collage of the state's "great men," but of many ordinary people from several cultural backgrounds, and volunteers take an active part in bringing their stories alive. For example, each January 6 Crailo in Rensselaer celebrates Twelfth Night, the traditional Dutch closing of the Christmas season. Members of the Friends of Crailo welcome visitors to the 18th-century home of the Van Rensselaer family and serve refreshments. A local choral society sings traditional carols. The rooms are decorated by members of the nearby Greenbush Garden Club and open-hearth cooking demonstrations draw dozens of people to the basement kitchen. The crowd of visitors to this annual event could not be handled by the site staff alone.

*New York State Parks & Recreation*

*New York State Parks & Recreation*

*Members of the Brigade of the American Revolution take part in special events at New Windsor Cantonment in Vails Gate, NY.*

Several dedicated individuals and organizations lend their time and energies to New York State's other historic sites. On many weekends between late winter and early fall, volunteers demonstrate maple sugaring, weaving, tinsmithing, shingle splitting and common household and farm chores at Herkimer Home near Little Falls. At Vails Gate near the Hudson Highlands, the Brigade of the American Revolution encamps at New Windsor Cantonment to explain the life of the 18th century soldier to visitors. Three separate garden clubs cultivate the flower beds at Senate House in Kingston, while others tend the plantings at Clermont in Germantown and John Jay Homestead in Katonah.

Docents in 19th century dress interpret the woman's role at a military post at Fort Ontario in Oswego, and quilters, draft horse enthusiasts, and other craftspeople gather in Johnstown for Johnson Hall's annual Market Fair. The Friends of Lorenzo, a volunteer organization based in Cazenovia, sponsors a day-long competition of horse-drawn vehicles each July at Lorenzo, the 1807 mansion of the Lincklaen family.

Volunteers embellish historic sites with day-to-day human activity, an element often lost in many painstakingly-restored but understaffed historic house museums. However, administrators of historic sites (and of all museums) must screen potential volunteers and carefully train and supervise those accepted. "If people offering help take the attitude of a 'volunteer professional,' then they are a generous gift to us," say Nichol Forsht,

New York State Parks & Recreation

*Hetcheling flax is one of many early American tasks demonstrated at Herkimer Home by volunteers on most weekends between spring and fall.*

Chief of the Collections Care Center at the Bureau of Historic Sites' main office in Peebles Island State Park in Waterford.

Historic site staff should expect to receive as much as they give to volunteers, and hopefully more, but should be aware that training people to interpret a historic site accurately, handle objects correctly, and communicate effectively can run into many hours. "The most successful volunteer program is one which both sides benefit in a symbiotic relationship," adds Ms. Forsht. If staff members neglect to show gratitude, or if the volunteers exaggerate their importance to a historic site, a volunteer program will probably fail. Similarly, a "Friends" organization will lose interest if unappreciated, and can harm a historic site's development if allowed too much independence.

## "Friends" Organizations

Nine organizations act as "Friends" of New York's state historic sites, in order to raise money for specific projects and to lend volunteer support. While the docent programs administered by the various Historic Site Managers are separate from "Friends" groups, the "Friends" often supply much of the volunteer force.

Lorenzo's annual competition for horse-drawn carriages is

sponsored by the Friends of Lorenzo, an organization whose more than two hundred members have raised over $100,000 for improvements to the mansion and grounds since 1975. In addition to making myriad arrangements for the competition, its members work the concession booths and fill in as tour guides at the mansion for the overflow crowds. The Friends of John Jay Homestead raises money to purchase items associated with the Jay family and to pay for improvements to the former estate of the first United States Chief Justice.

The Friends of Olana has acquired manuscripts of Frederic Church, a prominent Hudson River School artist, and has paid for the restoration of the exquisite interior stenciling and some of the furnishings in Church's unique mansion overlooking the Catskills. The Friends of Olana raises money through an auction of donated goods and services, an "Appraisal Day" for owners of antiques, a tour of Hudson Valley homes, and other special events.

Most volunteers at New York's state historic sites act as guides, particularly on days when special activities require extra people in each room to handle overflow crowds. Volunteers also relieve historic site staff of such time-consuming tasks as typing, filing, and answering phones. At Philipse Manor Hall, for example, one woman donates nine hours per week performing clerical work through the Retired Senior Volunteer Program of Westchester County. At the Bureau of Historic Sites' central office in Waterford, people with an interest in archeology clean and number sherds from excavations, a task the archeological staff could not undertake without

*New York State Parks & Recreation*

*The annual Driving Competition at Lorenzo in Cazenovia, NY is sponsored by the Friends of Lorenzo, one of nine organizations that raise money for and lend volunteer support to New York State historic sites.*

disrupting its schedule.

At Sackets Harbor Battlefield on the eastern shore of Lake Ontario, volunteers answer visitor's queries, do clerical chores, and clean up the grounds. One retiree simply greets visitors at the site's entrance. "Without volunteers," says Gary Ernest, the Historic Site Manager at Sackets Harbor, "our contact with the public would be reduced by a third."

## Special Skills

Volunteers with a variety of special skills enhance the programs of several historic sites. William Brown, a Rockland County teacher, assists the staff of Stony Point Battlefield in role-playing for groups of school children. Dressed appropriately, Mr. Brown plays both a tavern keeper and a military officer of the 18th century. The Brigade of the American Revolution, whose members combine a commitment to researching and re-creating the uniforms and accoutrements of Revolutionary War soldiers with an enthusiasm for assuming their roles at weekend encampments, has added a dimension of living history at New Windsor Cantonment, Bennington Battlefield, Schuyler Mansion, and other 18th-century historic sites.

Members of the Northeast Draft Horse Association, a farmers' organization that is preserving a significant part of pre-tractor agricultural technology, offer rides and demonstrations at Johnson Hall's Market Fair. At the Collections Care Center, several volunteers from the Embroiderers' Guild painstakingly repair antique fabrics under the supervision of Textile Conservator Vicky Kruckeberg. On a single 18th-century quilt from Schuyler Mansion, these volunteers logged over two hundred hours.

## Academic Backgrounds

People with academic backgrounds have made valuable contributions in research and publications for New York State historic sites. Shirley A. Mearns, a genealogist with the Ulster County Genealogical Society, has provided voluminous information on the families associated with Senate House. She also co-authored, with Leigh Jones, the Historic Site Manager, an article on Ammi Phillips, whose portraits are in the collections at Senate House, that was published in the September 1982 issue of *Antiques.*

At Guy Park in Amsterdam, Dorie Mac Arthur, an intern from an area college, has carefully researched a painted window shade owned by a 19th-century resident of the mansion. At the Collections Care Center, students interested in pursuing graduate work in artifact conservation have volunteered for summer internships with staff conservators, and two women with library science backgrounds have offered valuable suggestions for improving the research library and have spent many hours cataloging new books and periodicals.

## Where Do Volunteers Come From?

While several state historic sites actively recruit them, many volunteers come forward on their own initiative. Several say that they enjoy the contact with professional staff, and are often envious of those paid to work in such a setting. "I've seen so many beautiful things in the museums of Europe, but was frustrated at not being able to touch them," says Alice Rotundi, a member of the Embroiderers' Guild. "Here I can handle these antique fabrics and be helpful at the same time."

Groups of volunteers are more likely to evolve in wealthier communities than in areas of high unemployment. In northern New York, where the unemployed number as much as twenty percent of the population, Crown Point and John Brown Farm have, at best, miniscule volunteer programs, while Cazenovia, a well-to-do college community in the central part of the state, has produced a volunteer corps that last year gave over two thousand hours to Lorenzo. John Jay Homestead in affluent Westchester County also has an effective volunteer program, although Linda Connelly, the Historic Site Manager, notes that many who would have volunteered five years ago are now trying to get into the job market. "One of the best incentives for volunteers," she says, "is getting experience for a resume."

Several Bureau of Historic Sites staff members directly appeal to the public for volunteers. Russell Grills, the Historic Site Manager at Lorenzo, gives an annual talk to the Newcomers Club of Cazenovia. The staff of Philipse Manor Hall circulates a flier inviting "those who wish to share themselves with us" to work on a variety of essential tasks. Clermont's staff issues frequent news releases and delegates the task of recruitment to a Volunteer Coor-

*Members of the Molly Brant Quilting Guild meet at Johnson Hall near Johnstown, NY. In exchange for their use of a room at the historic site, the Guild tends the herb garden near the mansion.*

dinator. At Herkimer Home, staff members have cultivated a widening circle of personal contacts and friendships into an effective crafts program.

## Training

Training programs vary with the needs of the particular site and the sophistication of its volunteer program. At Clermont, volunteer guides undergo a twelve-hour formal training session that includes an overview of the Livingston family, the mansion and grounds, an orientation to general museum practices, and a trip to Vanderbilt Mansion in Hyde Park. Lorenzo's volunteers take a three-day training course that involves a general orientation and a field trip. At Guy Park, volunteers are trained along with incoming staff members.

Donnarae Gordon, the Interpretive Programs Assistant, seeks out the volunteers' particular interests, "but I let them know that while 75% of their work will be interesting, the remaining 25% will be dull." At Stony Point, volunteer educators must be able to work effectively with school children as well as the site staff; if not, they are dropped from the program.

Herkimer Home has perhaps the most unique training program in the state historic site system, one that is on-going and self-generated. The site's craftspeople learn from each other, and often chip in to pay visiting specialists to address their meetings.

At Olana, like many sites, training is tailored to each new volunteer. "We prefer to deal with them one-on-one," says Yvonne Smith, Olana's Interpretive Programs Assistant, who instructs each new volunteer in the site's history, care of collections, fire safety and evacuation.

Because the bulk of a historic site's staff time working with volunteers is invested in training and other start-up efforts, a high volunteer turnover will ultimately prove ineffective. Fortunately, most New York state historic sites report an annual turnover of around 10%, with a maximum of 50%. Where would they be without volunteers? The answers vary, but touch on similar themes: much more restricted programming, staff tied up in routine chores, and a reduced involvement with the public. "Volunteers make possible accomplishments that wouldn't be done in their absence, and they are a bridge to the local community," says Wallace F. Workmaster, Regional Historic Preservation Supervisor of the Taconic Park Region. "Without them, I would be two hundred hours behind," adds Textile Conservator Vicky Kruckeberg. But the plight of New York's state historic sites without volunteers is perhaps best summarized by Bruce Naramore, Historic Site Manager of Clermont: "We would be far less a museum and much more a caretaking operation."

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### BLM's Yuma Resource Area

Bureau of Land Management
Yuma Resource Area
P.O. Box 5680
Yuma, AZ 85364
(602) 726-6300

Green Thumb
P.O. Box 15787
Salt Lake City, UT 84115
(801) 486-3952

Student Conservation
Association, Inc.
P.O. Box 902
Vashon, WA 98070
(206) 463-3612

### C.A.M.P.E.R.S.

C.A.M.P.E.R.S.
Catoctin Mountain Park
Thurmont, MD 21788
(301) 663-9330

### Camp Fire, Inc.

Camp Fire, Inc.
4601 Madison Ave.
Kansas City, MO 64112
(816) 756-1950

### City of Westminster, CA

Community Services &
Recreation
Civic Center
8200 Westminster Ave.
Westminster, CA 92683
(714) 895-2860

### East Bay Regional Park

East Bay Regional Park District
11500 Skyline Boulevard
Oakland, CA 94619
(415) 531-9300

### Fish and Wildlife Service

For additional information of the Fish and Wildlife Service's volunteer program, write to the regional or national volunteer coordinators at the following addresses:

Alaska Regional Office
USFWS
1011 E. Todor Road
Anchorage, Alaska 99503

Albuquerque Regional Office
USFWS
Box 1306
Albuquerque, New Mexico 87103

Atlanta Regional Office
USFWS
Richard B. Russell Federal Bldg.
75 Spring Street, SW
Atlanta, Georgia 30303

Boston Regional Office
USFWS
One Gateway Center
Suite 700
Newton Corner, Mass. 02158

Denver Regional Office
USFWS
Box 25486, Denver Federal Center
Denver, Colo. 80225

Portland Regional Office
USFWS
Lloyd 500 Building, Suite 1692
500 NE Multnomah Street
Portland, Oregon 97232

Twin Cities Regional Office
USFWS
Federal Building, Fort Snelling
Twin Cities, Minn. 55111

U.S. Fish and Wildlife Service
Division of Refuge Management
Main Interior Building
Washington, D.C. 20560

### Mojave Road Project

Bureau of Land Management
Needles Resource Area
P.O. Box 305
Needles, CA 92363
(714) 326-3896

Friends of the Mojave Road
P.O. Box 307
Norco, CA 91760

### National Volunteer Project

Tom Martorelli, Director
National Volunteer Project
Appalachian Mountain Club
5 Joy Street
Boston, MA 02108
(607) 523-0636

### New York State Historic Sites

New York State Parks and
Recreation Division for Historic
Preservation
Peebles Island
Waterford, NY 12188
(518) 237-8643

American Association for State and Local History. "Technical Leaflet 65: Volunteer Docent Programs." Available from A.A.S.L.H., 708 Berry Road, Nashville, TN 37204

"Technical Leaflet 125: Training for Docents-How to Talk to Visitors."

Berrill, Anne and Fertig, Barbara C. "The Museum Volunteer." Ch. 5 of The Art Museum as Educator. Berkeley, Cal.: University of California Press, 1977.

Center for Museum Education. Volunteers in Museum Education: Sourcebook No. 2. Washington, D.C.: George Washington University, 1979.

### Volunteers In Parks Program

Volunteers in Parks Program
National Park Service
Department of the Interior
Washington, DC 20240
(202) 523-5270



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